

California High-Speed Train Project



Request for Proposal for Design-Build Services

RFP No.: HSR 11-16

Book 4, Part B, Section 3
Geotechnical Exploration Data Report
Volume 1 Appendix A-1 & B

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

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CALIFORNIA HIGH-SPEED TRAIN

Engineering Report

Procurement Package 1

Supplemental Data Geotechnical Exploration Data Appendix A-1 & B of Volume 1

June 29, 2012

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



CALIFORNIA HIGH-SPEED TRAIN PROJECT



PROCUREMENT PACKAGE 1

SUPPLEMENTAL DATA - GEOTECHNICAL EXPLORATION DATA

Appendix A-1 & B of Volume 1



For

AECOM

2020 L Street, Suite 300
Sacramento CA, 95811



PARIKH CONSULTANTS, INC.

2360 Qume Drive, Suite A, San Jose, CA 95131
(408) 452-9000

June 29, 2012

Job No. 2009-138-450 CP1

Supplemental Data - Report of Geotechnical Exploration Data
California High-Speed Train Merced to Fresno Corridor CP-1
Madera and Fresno Counties, California

This Supplemental Data Report should be included in the Volume 1 of the report. It is based on the remaining laboratory data between June 1, 2012 and June 29, 2012. This volume includes new laboratory test data, summary of laboratory test results and only the updated boring logs (based on new laboratory test data). Updated boring logs, included in this report, should supersede those included in the June 1, 2012 report.

APPENDIX A-1
(LOG OF TEST BORINGS)

| | | | | |
|---|--|-----------------------------------|---|--------------------------|
| LOGGED BY V. Santos | BEGIN DATE 4-23-12 | COMPLETION DATE 4-25-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 50' 2" / -119° 54' 58" | HOLE ID S0016R |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Rotary Wash | DRILL RIG CME 55 (Rig #35) | | BOREHOLE DIAMETER 6 1/2" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 93% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS N/A | | TOTAL DEPTH OF BORING 181.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|------------------------------|-----------------------|
| 0 | 0 | | ASPHALT (6" AC over 12" AB). | | | | | | | | | | | 0' to 5' Hand Augered |
| 1 | 1 | | | | | | | | | | | | | |
| 2 | 2 | | SILTY SAND (SM); loose; orange brown; moist; fine SAND. | | | | | | | | | | | |
| 3 | 3 | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | |
| 5 | 5 | | | | | | | | | | | | | |
| 6 | 6 | | | | S01 | 3 4 5 | 9 | | | | 100 | | | |
| 7 | 7 | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | | | |
| 11 | 11 | | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | |
| 15 | 15 | | Poorly graded SAND (SP); medium dense; brownish gray; coarse to fine SAND. | | | | | | | | | | | |
| 16 | 16 | | (+ #4=4%, - #200=4%). | | S03 | 5 9 12 | 21 | | | | 100 | | | |
| 17 | 17 | | | | | | | 8 | 107 | | | | | PA |
| 18 | 18 | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | |
| 21 | 21 | | Very dense. | | S04 | 7 15 30 | 45 | | | | 100 | | | |
| 22 | 22 | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | |
| 25 | 25 | | SILTY SAND (SM); very dense; light yellowish gray; moist. | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-7A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| | 25 | | SILTY SAND (SM); very dense; light yellowish gray; moist. <i>layer description continued from previous page</i> | X | S05 | 13 18 17 | 35 | 13 | | | 100 | | | | CR |
| | 26 | | | | | | | | | | | | | | |
| | 27 | | | | | | | | | | | | | | |
| | 28 | | | | | | | | | | | | | | |
| | 29 | | | | | | | | | | | | | | PA |
| | 30 | | | X | S06 | 7 12 20 | 32 | | | | 100 | | | | |
| | 31 | | | | | | | | | | | | | | |
| | 32 | | | | | | | | | | | | | | |
| | 33 | | | | | | | | | | | | | | |
| | 34 | | | | | | | | | | | | | | |
| | 35 | | Poorly graded SAND (SP); very dense; light yellowish gray; moist; medium to fine SAND. | X | S07 | 10 11 17 | 28 | | | | 100 | | | | |
| | 36 | | | | | | | | | | | | | | |
| | 37 | | | | | | | | | | | | | | |
| | 38 | | | | | | | | | | | | | | |
| | 39 | | | | | | | | | | | | | | |
| | 40 | | | | | | | | | | | | | | |
| | 41 | | (+ #4=0%, - #200=4%). | X | S08 | 9 17 19 | 36 | 12 | | | 100 | | | | |
| | 42 | | | | | | | | | | | | | | |
| | 43 | | | | | | | | | | | | | | |
| | 44 | | | | | | | | | | | | | | |
| | 45 | | | | | | | | | | | | | | |
| | 46 | | | X | S09 | 18 32 27 | 59 | | | | 100 | | | | |
| | 47 | | | | | | | | | | | | | | |
| | 48 | | | | | | | | | | | | | | |
| | 49 | | | | | | | | | | | | | | |
| | 50 | | | | | | | | | | | | | | |
| | 51 | | | X | S10 | 17 34 50/4" | 84/10" | | | | 89 | | | | |
| | 52 | | | | | | | | | | | | | | |
| | 53 | | | | | | | | | | | | | | |
| | 54 | | SILTY SAND (SM); very dense; orange brown to light gray; moist. | | | | | | | | | | | | |
| | 55 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-7B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILTY SAND (SM); very dense; orange brown to light gray; moist. <i>layer description continued from previous page</i> | X | S11 | 16 34 35 | 69 | | | | 100 | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | SILT (ML); hard; brown; moist. | | | | | | | | | | | | |
| 60 | | | | X | S12 | 24 34 45 | 79 | | | | 100 | | | | |
| 61 | | | | | | | | | | | | | | | |
| 62 | | | Grayish brown. | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | X | S13 | 17 48 47 | 95 | 33 | | | 100 | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | X | S14 | 50/4" | REF | | | | 100 | | | | |
| 81 | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-7C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SILT (ML); hard; brown; moist. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | Wet; nonplastic fines. | X | S15 | 10 11 16 | 27 | | | | 67 | | | | PI |
| 92 | | | | | | | | 33 | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | Trace fine SAND. | X | S16 | 13 21 30 | 51 | | | PP = 3.8 | 100 | | | | C |
| 102 | | | | | | | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | (LL=37, PI=6). | X | S17 | 20 31 25 | 56 | | | PP = 3.5 | 100 | | | | PI |
| 112 | | | | | | | | 36 | 82 | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-7D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | SILT (ML); hard; brown; moist. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | Poorly graded SAND (SP); very dense; gray; moist; medium to fine SAND. | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | | | S18 | 20 | 71 | | | | 100 | | | | |
| 121 | | | | | | 26 | | | | | | | | | |
| 122 | | | | | | 45 | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | | | | | | | | | | | | | |
| 130 | | | Poorly graded SAND with SILT (SP-SM); very dense; light brown; moist; medium to fine SAND. | | S19 | 24 | 81 | | | | 100 | | | | |
| 131 | | | | | | 38 | | | | | | | | | |
| 132 | | | | | | 43 | | | | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | SILTY SAND (SM); very dense; light gray; moist. | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | | | S20 | 22 | 71 | | | | 100 | | | | |
| 141 | | | | | | 36 | | | | | | | | | |
| 142 | | | | | | 35 | | | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-7E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | SILTY SAND (SM); very dense; light gray; moist. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | |
| 151 | | | Medium to fine SAND. | X | S21 | 40 | 50/5 | 48 | 68 | | 164 | | | | |
| 152 | | | | | | 50/5" | | | | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | | X | S22 | 27 | 62 | | | | 100 | | | | |
| 161 | | | | | | 29 | | | | | | | | | |
| 162 | | | | | | 33 | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |
| 166 | | | | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | | X | S23 | 22 | 53 | | | | 100 | | | | |
| 171 | | | | | | 24 | | | | | | | | | |
| 172 | | | | | | 29 | | 16 | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-7F

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 176 | | | SILTY SAND (SM); very dense; light gray; moist. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 177 | | | | | | | | | | | | | | | |
| 178 | | | | | | | | | | | | | | | |
| 179 | | | | | | | | | | | | | | | |
| 180 | | | Gray to orange brown; wet. | | | | | | | | | | | | |
| 181 | | | | X | S24 | 9 13 24 | 37 | | | | 100 | | | | |
| 182 | | | Bottom of borehole at 181.5 ft bgs. Groundwater was not measured due to rotary wash drilling method. | | | | | | | | | | | | |
| 183 | | | | | | | | | | | | | | | |
| 184 | | | | | | | | | | | | | | | |
| 185 | | | | | | | | | | | | | | | |
| 186 | | | | | | | | | | | | | | | |
| 187 | | | | | | | | | | | | | | | |
| 188 | | | | | | | | | | | | | | | |
| 189 | | | | | | | | | | | | | | | |
| 190 | | | | | | | | | | | | | | | |
| 191 | | | | | | | | | | | | | | | |
| 192 | | | | | | | | | | | | | | | |
| 193 | | | | | | | | | | | | | | | |
| 194 | | | | | | | | | | | | | | | |
| 195 | | | | | | | | | | | | | | | |
| 196 | | | | | | | | | | | | | | | |
| 197 | | | | | | | | | | | | | | | |
| 198 | | | | | | | | | | | | | | | |
| 199 | | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | | | |
| 201 | | | | | | | | | | | | | | | |
| 202 | | | | | | | | | | | | | | | |
| 203 | | | | | | | | | | | | | | | |
| 204 | | | | | | | | | | | | | | | |
| 205 | | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-7G

| | | | | |
|---|--|-----------------------------------|--|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 4-27-12 | COMPLETION DATE 4-27-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 50' 11" / -119° 55' 12" | HOLE ID S0018A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger - Rotary Wash | DRILL RIG CME 55 (Rig #10) | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 89.5 ft | | TOTAL DEPTH OF BORING 181.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | | | SILT (ML); hard; dark brown; moist; trace fine SAND. | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | S01 | 9 31 24 | 55 | | | | 78 | | | | %LEL/PPM=0, %O2=20.9, %H2S=0, %CO=0 |
| 4 | | | SILTY SAND (SM); very dense; light reddish brown; moist; fine SAND. (+#4=0%, #200=36%). | | | | | | | | | | | | |
| 5 | | | | | S02 | 11 50/3" | 50/3 | 8 | 121 | | 100 | | | | PA |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | S03 | 6 9 15 | 24 | | | | 78 | | | | PA |
| 11 | | | Medium dense; (+#4=0%, #200=27%). | | | | | 3 | 97 | | | | | | |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | S04 | 4 10 17 | 27 | | | | 89 | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | | | S05 | 13 21 24 | 45 | | | | 89 | | | | |
| 21 | | | Dense; light gray; coarse to medium SAND. | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | |
| 24 | | | SILT (ML); stiff; light gray; moist; fine SAND. | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |

(continued)



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-9A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | SILT (ML); stiff; light gray; moist; fine SAND. <i>layer description continued from previous page</i> | X | S06 | 4 7 8 | 15 | 10 | 113 | | 78 | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | Hard. | X | S07 | 12 39 50/5" | 89/11" | 5 | | | 106 | | | | CR |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | X | S08 | 6 9 10 | 19 | 32 | | | 78 | | | | PA |
| 31 | | | Very stiff; (+#4=0%, -#200=97%). | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | SANDY SILT (ML); hard; brown; moist; fine SAND. | X | S09 | 16 25 39 | 64 | | | | 78 | | | | C |
| 36 | | | | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | X | S10 | 10 18 35 | 53 | | | | 78 | | | | |
| 41 | | | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | X | S11 | 16 25 45 | 70 | 25 | 98 | | 89 | | | | |
| 46 | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | SILTY SAND (SM); very dense; olive; moist; fine SAND. | X | S12 | 12 20 39 | 59 | | | | 89 | | | | DS |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-9B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILTY SAND (SM); very dense; olive; moist; fine SAND. <i>layer description continued from previous page</i> Dense; brownish gra. | X | S13 | 15 21 25 | 46 | | | | 78 | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | SILT with SAND (ML); hard; light gray to light brow; moist; oxide staining. | X | S14 | 50/6" | REF | 15 | 113 | | 100 | | | | |
| 61 | | | | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | Trace fine GRAVEL. | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | X | S15 | 50/6" | REF | | | | 100 | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | | | | | | | | | | | | |
| 72 | | | Light brown; fine SAND. | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | X | S16 | 26 33 50 | 83 | | | | 89 | | | | |
| 81 | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-9C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|--|
| 86 | | | SILT with SAND (ML); hard; light gray to light brown; moist; oxide staining. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | Very stiff; wet; nonplastic fines. | | S17 | 5 11 18 | 29 | | | | 78 | | | | |
| 92 | | | | | | | | 37 | 85 | | | | | | PI |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | SILTY SAND (SM); very dense; light brown; wet. | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | | S18 | 16 24 36 | 60 | | | | 89 | | | | |
| 102 | | | SILT with SAND (ML); very dense; brown; wet. | | | | | | | | | | | | Switched to mud Rotary wash drilling at 100' |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | S19 | 50/6" | REF | | | | 100 | | | | |
| 111 | | | | | | | | | | | | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-9D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | SILT with SAND (ML); very dense; brown; wet. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | Poorly graded SAND with SILT (SP-SM); very dense; brown; wet; medium to fine SAND. | X | S20 | 22 34 47 | 81 | | | | 78 | | | | |
| 121 | | | | | | | | 41 | 79 | | | | | | |
| 122 | | | | | | | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | | | | | | | | | | | | | |
| 130 | | | | X | S21 | 31 50/3" | 50/3 | | | | 100 | | | | |
| 131 | | | | | | | | | | | | | | | |
| 132 | | | | | | | | | | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | | X | S22 | 22 50/6" | 50/6 | | | | 100 | | | | |
| 141 | | | Coarse to fine SAND. | | | | | | | | | | | | |
| 142 | | | | | | | | | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-9E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | Poorly graded SAND with SILT (SP-SM); very dense; brown; wet; medium to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | |
| 151 | | | (+ #4=0%, - #200=9%). | X | S23 | 27 40 50/5" | 90/11" | 21 | 99 | | 71 | | | | PA |
| 152 | | | | | | | | | | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | | | | |
| 161 | | | | X | S24 | 22 32 50/5" | 82/11" | | | | 76 | | | | |
| 162 | | | | | | | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |
| 166 | | | Lean CLAY (CL); hard; brown; wet. | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | | X | S25 | 23 50/4" | 50/4 | 31 | 90 | | 100 | | | | PI |
| 171 | | | (LL=38, PI=14). | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | SILTY SAND (SM); very dense; brown; wet; medium to fine SAND. | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-9F

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 176 | | | SILTY SAND (SM); very dense; brown; wet; medium to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 177 | | | | | | | | | | | | | | | |
| 178 | | | | | | | | | | | | | | | |
| 179 | | | | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | | | | |
| 181 | | | | X | S26 | 38 50/6" | 50/6 | | | | 100 | | | | |
| 182 | | | Bottom of borehole at 181.5 ft bgs. Groundwater was encountered at 89.5 ft during drilling. | | | | | | | | | | | | |
| 183 | | | | | | | | | | | | | | | |
| 184 | | | | | | | | | | | | | | | |
| 185 | | | | | | | | | | | | | | | |
| 186 | | | | | | | | | | | | | | | |
| 187 | | | | | | | | | | | | | | | |
| 188 | | | | | | | | | | | | | | | |
| 189 | | | | | | | | | | | | | | | |
| 190 | | | | | | | | | | | | | | | |
| 191 | | | | | | | | | | | | | | | |
| 192 | | | | | | | | | | | | | | | |
| 193 | | | | | | | | | | | | | | | |
| 194 | | | | | | | | | | | | | | | |
| 195 | | | | | | | | | | | | | | | |
| 196 | | | | | | | | | | | | | | | |
| 197 | | | | | | | | | | | | | | | |
| 198 | | | | | | | | | | | | | | | |
| 199 | | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | | | |
| 201 | | | | | | | | | | | | | | | |
| 202 | | | | | | | | | | | | | | | |
| 203 | | | | | | | | | | | | | | | |
| 204 | | | | | | | | | | | | | | | |
| 205 | | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-9G

| | | | | |
|---|--|----------------------------------|--|--|
| LOGGED BY L.S. Bhangoo | BEGIN DATE 5-2-12 | COMPLETION DATE 5-2-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 49' 55" / -119° 55' 31" | HOLE ID S0020Ra |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | | SURFACE ELEVATION |
| DRILLING METHOD Rotary Wash | DRILL RIG CME 55 (Rig #35) | | | BOREHOLE DIAMETER 6 1/2" |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | | HAMMER EFFICIENCY, ERI 93% |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 25.0 ft | | | TOTAL DEPTH OF BORING 181.0 ft |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | ASPHALT 6" AC over the 7' CTB. | | | | | | | | | | | | |
| 1 | 1 | | Cement Treated Base (CTB). | × | S01 | 50/4" | REF | | | | 100 | | | | Drilled on the Old Ramp at Hwy 99 |
| 2 | 2 | | | | | | | | | | | | | | %LEL/PPM=0, %O2=21.1, %H2S=0, %CO=0 |
| 3 | 3 | | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | × | S02 | 50/5" | REF | | | | 100 | | | | |
| 6 | 6 | | | | | | | | | | | | | | |
| 7 | 7 | | SANDY SILT (ML); very stiff; brown; moist; trace fine GRAVEL; fine SAND. | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | | | | |
| 11 | 11 | | (+ #4=1%, #200=54%). | ✱ | S03 | 4 8 12 | 20 | | 17 | 106 | 100 | | | | PA |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | Poorly graded SAND (SP); dense; brown; moist. | | | | | | | | | | | | |
| 15 | 15 | | | ✱ | S04 | 7 15 20 | 35 | | 14 | 114 | 89 | | | | CR |
| 16 | 16 | | | | | | | | | | | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | | |
| 21 | 21 | | Medium dense; (+ #4=0%, #200=4%). | ✱ | S05 | 7 5 12 | 17 | | 28 | 99 | 89 | | | | %LEL/PPM=0, %O2=21.2, %H2S=0, %CO=0 PA |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)


CALIFORNIA
High-Speed Rail Authority

CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-11A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 25 | 25 | | Poorly graded SAND (SP); dense; brown; moist. <i>layer description continued from previous page</i> | | S06 | 8 | 16 | | | | 89 | | | | |
| 26 | 26 | | Brownish gray; moist to wet. | | | 8 | | | | | | | | | |
| 27 | 27 | | | | | 8 | | | | | | | | | |
| 28 | 28 | | | | | | | | | | | | | | |
| 29 | 29 | | Well-graded SAND with SILT (SW-SM); medium dense; brown; wet. | | | | | | | | | | | | |
| 30 | 30 | | | | S07 | 4 | 21 | | | | 100 | | | | |
| 31 | 31 | | (+ #4=1%, #200=8%). | | | 9 | | | | | | | | | PA |
| 32 | 32 | | | | | 12 | | 6 | 111 | | | | | | |
| 33 | 33 | | | | | | | | | | | | | | |
| 34 | 34 | | | | | | | | | | | | | | |
| 35 | 35 | | | | S08 | 15 | 56 | | | | 78 | | | | |
| 36 | 36 | | Very dense; brown to gray; coarse to fine SAND. | | | 24 | | | | | | | | | |
| 37 | 37 | | | | | 32 | | | | | | | | | |
| 38 | 38 | | | | | | | | | | | | | | |
| 39 | 39 | | | | | | | | | | | | | | |
| 40 | 40 | | Poorly graded SAND with SILT (SP-SM); very dense; brownish gray; wet; fine SAND. | | S09 | 28 | 50/5 | | | | 100 | | | | |
| 41 | 41 | | | | | 50/5" | | 7 | 109 | | | | | | |
| 42 | 42 | | | | | | | | | | | | | | |
| 43 | 43 | | | | | | | | | | | | | | |
| 44 | 44 | | | | | | | | | | | | | | |
| 45 | 45 | | | | S10 | 31 | 51/6 | | | | 83 | | | | |
| 46 | 46 | | Moderate to strong cementation. | | | 51/6" | | | | | | | | | %LEL/PPM=0, %O2=21.0, %H2S=0, %CO=0 |
| 47 | 47 | | | | | | | | | | | | | | |
| 48 | 48 | | | | | | | | | | | | | | |
| 49 | 49 | | | | | | | | | | | | | | |
| 50 | 50 | | | | S11 | 17 | 67 | | | | 100 | | | | |
| 51 | 51 | | (+ #4=0%, #200=7%). | | | 31 | | | | | | | | | PA |
| 52 | 52 | | | | | 36 | | 2 | 108 | | | | | | |
| 53 | 53 | | SILTY CLAY (CL-ML); hard; brown; moist. | | | | | | | | | | | | |
| 54 | 54 | | | | | | | | | | | | | | |
| 55 | 55 | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-11B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILTY CLAY (CL-ML); hard; brown; moist. <i>layer description continued from previous page</i> (LL=24, PI=6). | X | S12 | 23 50/4" | 50/4 | 12 | 118 | | 100 | | | | PI |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | | X | S13 | 50/3" | REF | 30 | | | 100 | | | | |
| 61 | | | Wet. | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | Poorly graded SAND with SILT (SP-SM); very dense; brownish gray; wet; fine SAND. | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | X | S14 | 24 42 50 | 92 | | | | 89 | | | | |
| 71 | | | | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | Elastic SILT (MH); hard; brown; wet. | X | S15 | 23 50/5" | 50/5 | | | UC = 1.8 | 100 | | | | PI |
| 81 | | | (LL=52, PI=12). | | | | | 43 | 75 | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-11C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | Elastic SILT (MH); hard; brown; wet. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | | S16 | 24 51/6" | 51/6 | | | | 67 | | | | |
| 92 | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | | S17 | 23 50/6" | 50/6 | | | | 100 | | | | |
| 102 | | | Poorly graded SAND with SILT (SP-SM); very dense; brown; wet; fine SAND. | | | | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | | | S18 | 28 50/4" | 50/4 | | | | 83 | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-11D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | Poorly graded SAND with SILT (SP-SM); very dense; brown; wet; fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | | |
| 121 | | | | X | S19 | 27 50 50/4" | 100/10" | | | | 100 | | | | |
| 122 | | | | | | | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | | | | | | | | | | | | | |
| 130 | | | | X | S20 | 29 52/6" | 52/6 | | | | 100 | | | | |
| 131 | | | Brownish gray. | | | | | | | | | | | | |
| 132 | | | | | | | | | | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | | X | S21 | 32 50/5" | 50/5 | | | | 100 | | | | |
| 141 | | | Coarse to fine SAND. | | | | | | | | | | | | |
| 142 | | | | | | | | | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-11E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | SILTY SAND (SM); very dense; brown; wet; medium to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | (+ #4=0%, - #200=24%). | ✱ | S22 | 50/5" | REF | 53 | 62 | | 80 | | | | PA |
| 151 | | | | | | | | | | | | | | | |
| 152 | | | | | | | | | | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | Poorly graded SAND (SP); very dense; brown; wet. | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | | ✱ | S23 | 41 44 49 | 93 | | | | 78 | | | | |
| 161 | | | | | | | | | | | | | | | |
| 162 | | | | | | | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | Lean CLAY (CL); hard; brown; wet; low plasticity fines. | | | | | | | | | | | | |
| 166 | | | | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | (LL=31, PI=15). | ✱ | S24 | 50/6" | REF | 23 | 101 | | 83 | | | | PI |
| 171 | | | | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-11F

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 176 | | | Lean CLAY (CL); hard; brown; wet; low plasticity fines. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 177 | | | | | | | | | | | | | | | |
| 178 | | | | | | | | | | | | | | | |
| 179 | | | | | | | | | | | | | | | |
| 180 | | | | | | | | | | | | | | | |
| 181 | | | | | | | | | | | | | | | |
| 181 | | | | X | S25 | 48 | 50/5 | | | | 45 | | | | |
| 181 | | | Bottom of borehole at 181.0 ft bgs. Groundwater was encountered at 25 feet during drilling. | | | | | | | | | | | | |
| 182 | | | | | | | | | | | | | | | |
| 183 | | | | | | | | | | | | | | | |
| 184 | | | | | | | | | | | | | | | |
| 185 | | | | | | | | | | | | | | | |
| 186 | | | | | | | | | | | | | | | |
| 187 | | | | | | | | | | | | | | | |
| 188 | | | | | | | | | | | | | | | |
| 189 | | | | | | | | | | | | | | | |
| 190 | | | | | | | | | | | | | | | |
| 191 | | | | | | | | | | | | | | | |
| 192 | | | | | | | | | | | | | | | |
| 193 | | | | | | | | | | | | | | | |
| 194 | | | | | | | | | | | | | | | |
| 195 | | | | | | | | | | | | | | | |
| 196 | | | | | | | | | | | | | | | |
| 197 | | | | | | | | | | | | | | | |
| 198 | | | | | | | | | | | | | | | |
| 199 | | | | | | | | | | | | | | | |
| 200 | | | | | | | | | | | | | | | |
| 201 | | | | | | | | | | | | | | | |
| 202 | | | | | | | | | | | | | | | |
| 203 | | | | | | | | | | | | | | | |
| 204 | | | | | | | | | | | | | | | |
| 205 | | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-11G

| | | | | |
|--|--|-----------------------------------|--|--|
| LOGGED BY L.S. Bhangoo | BEGIN DATE 5-17-12 | COMPLETION DATE 5-18-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 50' 30" / -119° 55' 47" | HOLE ID S0022Ra |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | | SURFACE ELEVATION |
| DRILLING METHOD Rotary Wash | DRILL RIG CME 55 (Rig #35) | | | BOREHOLE DIAMETER 6 1/2" |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | | HAMMER EFFICIENCY, ERI 93% |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 64.0 ft | | | TOTAL DEPTH OF BORING 161.5 ft |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|------------------------------|---|
| 0 | 0 | | SILTY SAND (SM); (from the cuttings). | | | | | | | | | | | Due to very loose SAND casing was pushed to 10 ft to take the first sample. (Loosing circulation) |
| 1 | 1 | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | |
| 3 | 3 | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | |
| 5 | 5 | | | | | | | | | | | | | |
| 6 | 6 | | | | | | | | | | | | | |
| 7 | 7 | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | |
| 10 | 10 | | SILTY SAND (SM); loose to medium dense; brown; moist; medium to fine SAND. | | S01 | 2 | 11 | | | | 78 | | | %LEL/PPM=0, %O2=21.2, %H2S=0, %CO=0 CR, DS |
| 11 | 11 | | | | | 5 | | | | | | | | |
| 12 | 12 | | | | | 6 | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | |
| 15 | 15 | | | | S02 | 4 | 14 | | | | 72 | | | |
| 16 | 16 | | Medium dense; (-#200=22%). | | | 6 | | | | | | | | PA |
| 17 | 17 | | | | | 8 | | 7 | 111 | | | | | |
| 18 | 18 | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | |
| 20 | 20 | | | | S03 | 3 | 19 | | | | 72 | | | |
| 21 | 21 | | Reddish brown. | | | 8 | | | | | | | | |
| 22 | 22 | | | | | 11 | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | |
| 25 | 25 | | SILT (ML); hard; yellowish brown; moist. | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority

CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-13A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| | 25 | | SILT (ML); hard; yellowish brown; moist. <i>layer description continued from previous page</i> | | S04 | 13 28 50 | 78 | | | | 72 | | | | |
| | 26 | | | | | | | 20 | 96 | | | | | | %LEL/PPM=0, %O2=21.2, %H2S=0, %CO=0 |
| | 27 | | | | | | | | | | | | | | |
| | 28 | | | | | | | | | | | | | | |
| | 29 | | | | | | | | | | | | | | |
| | 30 | | | | S05 | 17 26 50 | 76 | | | | 78 | | | | |
| | 31 | | Poorly graded SAND with SILT (SP-SM); very dense; yellowish brown; moist. | | | | | 5 | 106 | | | | | | |
| | 32 | | | | | | | | | | | | | | |
| | 33 | | | | | | | | | | | | | | |
| | 34 | | | | | | | | | | | | | | |
| | 35 | | | | S06 | 15 33 48 | 81 | | | | 78 | | | | |
| | 36 | | (+ #4=0%, #200=7%). | | | | | 4 | 111 | | | | | | PA |
| | 37 | | | | | | | | | | | | | | |
| | 38 | | | | | | | | | | | | | | |
| | 39 | | | | | | | | | | | | | | |
| | 40 | | SILTY SAND (SM); very dense; reddish brown; moist; trace GRAVEL. | | S07 | 50/5" | REF | | | | 100 | | | | |
| | 41 | | (+ #4=5%, #200=14%). | | | | | 10 | 130 | | | | | | PA |
| | 42 | | | | | | | | | | | | | | |
| | 43 | | | | | | | | | | | | | | |
| | 44 | | | | | | | | | | | | | | |
| | 45 | | | | S08 | 25 50/5" | 50/5 | | | | 100 | | | | |
| | 46 | | | | | | | | | | | | | | |
| | 47 | | | | | | | | | | | | | | |
| | 48 | | Poorly graded SAND with SILT (SP-SM); very dense; gray; moist. | | | | | | | | | | | | |
| | 49 | | | | | | | | | | | | | | |
| | 50 | | | | S09 | 50/5" | REF | | | | 100 | | | | |
| | 51 | | | | | | | | | | | | | | |
| | 52 | | | | | | | | | | | | | | |
| | 53 | | | | | | | | | | | | | | |
| | 54 | | | | | | | | | | | | | | |
| | 55 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-13B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | Poorly graded SAND with SILT (SP-SM); very dense; gray; moist. <i>layer description continued from previous page</i> | | S10 | 15 | 51 | | | | 61 | | | | PA |
| 57 | | | Light brown; (+#4=0%, -#200=5%). | | | 17 | | 9 | 107 | | | | | | |
| 58 | | | | | | 34 | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | |
| 61 | | | SILTY SAND (SM); very dense; light brown; moist to wet; coarse to fine SAND. | | S11 | 20 | 80 | | | | 44 | | | | |
| 62 | | | | | | 40 | | | | | | | | | |
| 63 | | | | | | 40 | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | S12 | 10 | 75 | | | | 56 | | | | |
| 71 | | | | | | 25 | | | | | | | | | |
| 72 | | | | | | 50 | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | | S13 | 11 | 60 | | | | 56 | | | | |
| 81 | | | Medium to fine SAND. | | | 27 | | | | | | | | | |
| 82 | | | | | | 33 | | 23 | 99 | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

(continued)



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-13C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SILTY SAND (SM); very dense; light brown; moist to wet; coarse to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | | S14 | 21 40 50/5" | 90/11" | | | | 76 | | | | |
| 92 | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | Gray; fine SAND. | | S15 | 13 30 50/4" | 80/10" | | | | 63 | | | | |
| 102 | | | | | | | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | Light brown. | | S16 | 27 35 50 | 85 | | | | 72 | | | | |
| 112 | | | | | | | | 20 | 105 | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-13D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | SILTY SAND (SM); very dense; light brown; moist to wet; coarse to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | | |
| 121 | | | Medium to fine SAND. | X | S17 | 16 38 50/4" | 88/10" | | | | 56 | | | | |
| 122 | | | | | | | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | SILT (ML); hard; dark gray; moist. | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | | | | | | | | | | | | | |
| 130 | | | | | | | | | | | | | | | |
| 131 | | | Nonplastic fines. | X | S18 | 28 50/4" | 50/4 | | | | 100 | | | | |
| 132 | | | | | | | | 40 | 75 | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | SILTY SAND (SM); very dense; light brown; moist; coarse to fine SAND. | X | S19 | 16 37 40 | 77 | | | | 56 | | | | |
| 141 | | | | | | | | | | | | | | | |
| 142 | | | | | | | | | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-13E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | SILTY SAND (SM); very dense; light brown; moist; coarse to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | |
| 151 | | | Fine SAND. | X | S20 | 28 50/3" | 50/3 | | | | 100 | | | | |
| 152 | | | | | | | | 23 | 98 | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | Lean CLAY (CL); hard; dark gray; moist. | X | S21 | 19 32 43 | 75 | | | | 56 | | | | |
| 161 | | | | | | | | | | | | | | | |
| 162 | | | Bottom of borehole at 161.5 ft bgs. Groundwater was encountered at 64 feet during drilling. | | | | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |
| 166 | | | | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | |
| 171 | | | | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-13F

| | | | | |
|--|--|-----------------------------------|--|---|
| LOGGED BY A. Bakane | BEGIN DATE 5-18-12 | COMPLETION DATE 5-18-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 50' 33" / -119° 55' 51" | HOLE ID S0023Aa |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | | SURFACE ELEVATION |
| DRILLING METHOD Hollow-Stem Auger - Rotary Wash | DRILL RIG CME 55 (Rig #10) | | | BOREHOLE DIAMETER 8" |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | | HAMMER EFFICIENCY, ERI 87% |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | | TOTAL DEPTH OF BORING 71.5 ft |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | | | SANDY SILT (ML); reddish brown; (from the cuttings). | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |
| 11 | | | SANDY SILT (ML); hard; dark brown; moist; trace coarse grained particles, (-#200=57%). | | S01 | 12 18 20 | 38 | | 16 | 111 | | 100 | | | %LEL/PPM=0, %O2=20.8, %H2S=0, %CO=0 PA |
| 12 | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | | |
| 20 | | | SILTY SAND (SM); very dense; dark brown; moist; trace coarse, rounded GRAVEL, max. up to 2" in. dia.; medium to fine SAND. | | S02 | 10 27 40 | 67 | | | | | 78 | | | |
| 21 | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | | |

(continued)


CALIFORNIA
High-Speed Rail Authority

CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-14A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|--|
| | 25 | | SILTY SAND (SM); very dense; dark brown; moist; trace coarse, rounded GRAVEL, max. up to 2" in. dia.; medium to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | (25' to 40' Hard drilling because of the GRAVELS). |
| | 26 | | | | | | | | | | | | | | |
| | 27 | | | | | | | | | | | | | | |
| | 28 | | | | | | | | | | | | | | |
| | 29 | | | | | | | | | | | | | | |
| | 30 | | SILTY SAND with GRAVEL (SM); medium dense; dark brown; moist; little rounded GRAVEL, max. 1" in. dia.. (+#4=16%, -#200=24%). | X | S03 | 6 8 14 | 22 | 8 | | | 56 | | | | PA |
| | 31 | | | | | | | | | | | | | | |
| | 32 | | | | | | | | | | | | | | |
| | 33 | | | | | | | | | | | | | | |
| | 34 | | | | | | | | | | | | | | |
| | 35 | | | | | | | | | | | | | | |
| | 36 | | | | | | | | | | | | | | |
| | 37 | | | | | | | | | | | | | | |
| | 38 | | | | | | | | | | | | | | |
| | 39 | | | | | | | | | | | | | | |
| | 40 | | SILTY SAND with GRAVEL (SM); very dense; reddish brown; moist; trace GRAVEL; coarse to fine SAND. | X | S04 | 20 50/3" | 50/3 | | | | 100 | | | | |
| | 41 | | | | | | | | | | | | | | |
| | 42 | | | | | | | | | | | | | | |
| | 43 | | | | | | | | | | | | | | |
| | 44 | | | | | | | | | | | | | | |
| | 45 | | | | | | | | | | | | | | |
| | 46 | | | | | | | | | | | | | | Switched to mud Rotary Wash drilling at 45' (Hard drilling by Auger) |
| | 47 | | | | | | | | | | | | | | |
| | 48 | | | | | | | | | | | | | | |
| | 49 | | | | | | | | | | | | | | |
| | 50 | | | X | S05 | 23 50/4" | 50/4 | | | | 100 | | | | Switched to Rig #35 with Hammer Energy Ratio of 93% PA |
| | 51 | | Gray; trace GRAVEL, max. up to 1/4" in. dia.; (+#4=0%, -#200=23%). | | | | | 16 | 102 | | | | | | |
| | 52 | | | | | | | | | | | | | | |
| | 53 | | | | | | | | | | | | | | |
| | 54 | | | | | | | | | | | | | | |
| | 55 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-14B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILTY SAND with GRAVEL (SM); very dense; reddish brown; moist; trace GRAVEL; coarse to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | SILTY SAND (SM); dense; gray; wet; medium to fine SAND. | | | | | | | | | | | | |
| 61 | | | | | S06 | 14 17 28 | 45 | | | | 78 | | | | |
| 62 | | | | | | | | 30 | 88 | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | | S07 | 21 32 50/5" | 82/11" | | | | 94 | | | | |
| 72 | | | Very dense; moist to wet. | | | | | | | | | | | DS | |
| 73 | | | Bottom of borehole at 71.5 ft bgs. Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | |
| 81 | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-14C

| | | | | |
|--|--|-----------------------------------|--|---------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 5-15-12 | COMPLETION DATE 5-16-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 50' 46" / -119° 56' 17" | HOLE ID S0026Ra |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Rotary Wash | DRILL RIG CME 55 (Rig #10) | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS N/A | | TOTAL DEPTH OF BORING 151.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | ASPHALT 8" of AC over 8" AB. | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | SANDY SILT (ML); very stiff; brown; moist; fine SAND. | | | | | | | | | | | | |
| 3 | 3 | | (-#200=51%). | | S01 | 8 10 12 | 22 | 6 | 110 | | 89 | | | | %LEL/PPM=0, %O2=20.7, %H2S=0, %CO=0 PA |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | | S02 | 10 50/5" | 50/5 | 15 | 105 | | 164 | | | | CR |
| 6 | 6 | | Hard; oxide staining. | | | | | | | | | | | | |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | S03 | 14 28 28 | 56 | 22 | 101 | | 67 | | | | |
| 11 | 11 | | | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | Poorly graded SAND (SP); very dense; light grayish brown; moist; coarse to fine SAND. | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 11 21 35 | 56 | | | | 78 | | | | (15' to 25' loosing circulation) |
| 16 | 16 | | | | | | | | | | | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | S05 | 14 32 50/5" | 82/11" | 5 | 110 | | 100 | | | | |
| 21 | 21 | | Light brown; fine SAND. | | | | | | | | | | | | |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-17A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | 25 | | Poorly graded SAND (SP); very dense; light grayish brown; moist; coarse to fine SAND. <i>layer description continued from previous page</i> | | S06 | 11 24 38 | 62 | | | | 89 | | | | |
| 26 | 26 | | Medium to fine SAND. | | | | | | | | | | | | |
| 27 | 27 | | | | | | | | | | | | | | |
| 28 | 28 | | | | | | | | | | | | | | |
| 29 | 29 | | | | | | | | | | | | | | |
| 30 | 30 | | | | S07 | 16 46 50/4" | 96/10" | | | | 88 | | | | |
| 31 | 31 | | Black mottling. | | | | | | | | | | | | |
| 32 | 32 | | | | | | | | | | | | | | |
| 33 | 33 | | | | | | | | | | | | | | |
| 34 | 34 | | | | | | | | | | | | | | |
| 35 | 35 | | SANDY SILT (ML); hard; light gray; moist; fine SAND. | | S08 | 14 26 36 | 62 | | | | 78 | | | | |
| 36 | 36 | | (-#200=53%). | | | | | 14 | 97 | | | | | | PA |
| 37 | 37 | | | | | | | | | | | | | | |
| 38 | 38 | | | | | | | | | | | | | | |
| 39 | 39 | | | | | | | | | | | | | | |
| 40 | 40 | | | | S09 | 16 25 40 | 65 | | | | 100 | | | | |
| 41 | 41 | | Light brown; medium to fine SAND. | | | | | 7 | 109 | | | | | | |
| 42 | 42 | | | | | | | | | | | | | | |
| 43 | 43 | | | | | | | | | | | | | | |
| 44 | 44 | | Grayish brown; oxide staining. | | | | | | | | | | | | |
| 45 | 45 | | | | S10 | 23 40 50/5" | 90/11" | | | | 100 | | | | |
| 46 | 46 | | | | | | | 23 | 102 | | | | | | |
| 47 | 47 | | | | | | | | | | | | | | |
| 48 | 48 | | | | | | | | | | | | | | |
| 49 | 49 | | | | | | | | | | | | | | |
| 50 | 50 | | | | S11 | 15 44 50/4" | 94/10" | | | | 100 | | | | |
| 51 | 51 | | Light gray; fine SAND. | | | | | | | | | | | | |
| 52 | 52 | | | | | | | | | | | | | | |
| 53 | 53 | | | | | | | | | | | | | | |
| 54 | 54 | | | | | | | | | | | | | | |
| 55 | 55 | | | | | | | | | | | | | | |

(continued)



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1

FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-17B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILTY SAND (SM); very dense; dark brown; moist; medium to fine SAND. <i>layer description continued from previous page</i> (-#200=28%). | ✱ | S12 | 10 40 50/4" | 90/10" | 9 | 128 | | 100 | | | | PA |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | SANDY SILT (ML); hard; light brown; moist; medium to fine SAND. (+ #4=0%, -#200=53%). | ✱ | S13 | 50/5" | REF | 17 | 107 | | 100 | | | | PA |
| 61 | | | | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | Light gray; fine SAND. | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | Light gray; fine SAND. | ✱ | S14 | 16 28 36 | 64 | 27 | 92 | | 83 | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | | | | | | | | | | | | |
| 72 | | | Brown; (-#200=55%). | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | Brown; (-#200=55%). | ✱ | S15 | 17 20 17 | 37 | 16 | 88 | | 89 | | | | PA |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | |
| 81 | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-17C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SANDY SILT (ML); hard; light brown; moist; medium to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | SILTY SAND (SM); very dense; light gray; moist; medium to fine SAND. | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | | S16 | 24 32 50/5" | 82/11" | | | | 82 | | | | |
| 92 | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | Dense; moist to wet. | | S17 | 11 18 30 | 48 | | | | 100 | | | | |
| 102 | | | | | | | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | SANDY SILT (ML); hard; light gray; moist to wet. | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | Nonplastic fines. | | S18 | 28 50/4" | 50/4 | 29 | 89 | | 100 | | | | PI |
| 111 | | | | | | | | | | | | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-17D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | SANDY SILT (ML); hard; light gray; moist to wet. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | | | | | | | | | | | | | |
| 121 | | | Wet; trace fine SAND. | X | S19 | 27 29 50/5" | 79/11" | | | | 89 | | | | |
| 122 | | | | | | | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | | | | | | | | | | | | | |
| 130 | | | | X | S20 | 42 50/4" | 50/4 | 33 | 84 | | 100 | | | | |
| 131 | | | | | | | | | | | | | | | |
| 132 | | | | | | | | | | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | | | | | | | | | | | | | |
| 141 | | | Poorly graded SAND with SILT (SP-SM); very dense; light brown; wet; coarse to fine SAND. | X | S21 | 21 30 50/5" | 80/11" | | | | 94 | | | | |
| 142 | | | | | | | | | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-17E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | Poorly graded SAND with SILT (SP-SM); very dense; light brown; wet; coarse to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | |
| 151 | | | Light gray; (+#4=0%, -#200=7%). | | S22 | 24 | 85 | | | | 78 | | | | |
| 151 | | | | | | 40 | | | | | | | | | |
| 151 | | | | | | 45 | | 18 | 112 | | | | | | PA |
| 152 | | | Bottom of borehole at 151.5 ft bgs. Groundwater was not measured due to rotary wash drilling method. | | | | | | | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | | | | |
| 161 | | | | | | | | | | | | | | | |
| 162 | | | | | | | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |
| 166 | | | | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | |
| 171 | | | | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-17F

| | | | | |
|---|--|---|---|--------------------------------------|
| LOGGED BY L.S. Bhangoo | BEGIN DATE 4-4-12 | COMPLETION DATE 4-4-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 51' 4" / -119° 56' 32" | HOLE ID S0028A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | | SURFACE ELEVATION |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 55 (Rig #35) | | | BOREHOLE DIAMETER 6 1/2" |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | | HAMMER EFFICIENCY, ERI 93% |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING READINGS 86.0 ft | AFTER DRILLING (DATE) 75.0 ft on 4-4-12 | TOTAL DEPTH OF BORING 101.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|--------------------------------------|
| 0 | 0 | | SILTY SAND (SM); medium dense; brown; moist; fine SAND. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=64) |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | (+ #4=3%, - #200=38%). | | S01 | 3 6 7 | 13 | 6 | 118 | | 100 | | | | PA |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | | S02 | 50/3 | REF | 8 | | | 100 | | | | CR |
| 6 | 6 | | Very dense; moderate cementation; (weathered sandstone). | | | | | | | | | | | | |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | SILT (ML); hard; brown; moist. | | S03 | 21 33 50/3" | 83/9" | 18 | 93 | | 73 | | | | |
| 11 | 11 | | | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 16 20 22 | 42 | 30 | 92 | | 72 | | | | |
| 16 | 16 | | Yellowish gray; (+ #4=0%, - #200=100%). | | | | | | | | | | | | C, PA |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | S05 | 5 12 21 | 33 | 14 | 113 | | 89 | | | | |
| 21 | 21 | | | | | | | | | | | | | | |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-19A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | SILT (ML); hard; brown; moist. <i>layer description continued from previous page</i> | | S06 | 17 | 66 | | | | 89 | | | | |
| 26 | | | Brown; trace SAND; nonplastic fines. | | | 33 | | 22 | 103 | | | | | | PI |
| 27 | | | | | | 33 | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | Well-graded SAND (SW); dense; gray; moist; coarse to medium SAND. | | S07 | 9 | 41 | | | | 78 | | | | |
| 31 | | | | | | 15 | | 2 | | | | | | | |
| 32 | | | | | | 26 | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | | | Dense; (+#4=0%, -#200=4%). | | S08 | 8 | 32 | | | | 72 | | | | PA |
| 37 | | | | | | 15 | | 3 | | | | | | | |
| 38 | | | | | | 17 | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | Well-graded SAND with SILT (SW-SM); dense; brown; moist. | | S09 | 8 | 31 | | | | 100 | | | | PA |
| 41 | | | (+#4=0%, -#200=11%). | | | 13 | | 4 | | | | | | | |
| 42 | | | | | | 18 | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | Very dense. | | S10 | 12 | 58 | | | | 78 | | | | |
| 47 | | | | | | 28 | | | | | | | | | |
| 48 | | | | | | 30 | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | | S11 | 21 | 35 | | | | 83 | | | | |
| 52 | | | | | | 17 | | 3 | | | | | | | |
| 53 | | | | | | 18 | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-19B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | Well-graded SAND with SILT (SW-SM); dense; brown; moist. <i>layer description continued from previous page</i> | X | S12 | 22 31 43 | 74 | 12 | 114 | | 78 | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | Lean CLAY (CL); hard; brown to gray; moist. | | | | | | | | | | | | |
| 60 | | | | X | S13 | 14 18 42 | 60 | | | | 78 | | | | |
| 61 | | | | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | SANDY SILT (ML); hard; brown; moist. | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | X | S14 | 7 12 19 | 31 | | | | 100 | | | | |
| 71 | | | (+ #4=0%, - #200=68%). | | | | | 26 | | | | | | | PA |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | Pockets of sand. | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | X | S15 | 18 21 23 | 44 | | | | 72 | | | | PI |
| 81 | | | (LL=34, PI=8). | | | | | 27 | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-19C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SANDY SILT (ML); hard; brown; moist. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | SILTY SAND (SM); dense; brown; moist; medium to fine SAND. | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | | S16 | 20 22 27 | 49 | | | | 67 | | | | |
| 92 | | | | | | | | 16 | 103 | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | Poorly graded SAND with SILT (SP-SM); very dense; brown; moist. | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | | S17 | 13 21 36 | 57 | | | | 72 | | | | |
| 102 | | | (+ #4=0%, - #200=10%). | | | | | 19 | 105 | | | | | | PA |
| 103 | | | Bottom of borehole at 101.5 ft bgs. Groundwater was encountered at 86 feet during drilling. Groundwater was measured at 75 feet after drilling on 4/4/12. | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | | | | | | | | | | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-19D

| | | | | |
|---|--|-----------------------------------|--|---|
| LOGGED BY V. Santos | BEGIN DATE 4-26-12 | COMPLETION DATE 4-26-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 51' 10" / -119° 56' 46" | HOLE ID S0029A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | | SURFACE ELEVATION |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 45 | | | BOREHOLE DIAMETER 8" |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | | HAMMER EFFICIENCY, ERI 92% |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | | TOTAL DEPTH OF BORING 36.5 ft |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | SANDY SILT (ML); very stiff; brown; moist; fine SAND. | | | | | | | | | | | | |
| 1 | 1 | | | | S01 | 6 | 17 | | | | 100 | | | | |
| 2 | 2 | | (+ #4=0%, - #200=66%). | | | 9 | | 9 | 115 | | | | | | PA |
| 3 | 3 | | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | Hard; reddish brown. | | S02 | 13 | 56 | | | | 100 | | | | 5' to 11.5' "HARD PAN" or CALICHE LAYER |
| 6 | 6 | | | | | 23 | | | | | | | | | |
| 7 | 7 | | | | | 33 | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | S03 | 18 | 80 | | | | 100 | | | | |
| 11 | 11 | | SILTY SAND (SM); dense; brown. | | | 38 | | | | | | | | | CL, DS |
| 12 | 12 | | | | | 42 | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | Poorly graded SAND (SP); dense; light gray; moist; fine SAND. | | S04 | 6 | 21 | | | | 100 | | | | |
| 16 | 16 | | (+ #4=0%, - #200=3%). | | | 10 | | 2 | | | | | | | PA |
| 17 | 17 | | | | | 11 | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | Medium dense; medium to fine SAND. | | S05 | 4 | 19 | | | | 100 | | | | |
| 21 | 21 | | | | | 7 | | | | | | | | | |
| 22 | 22 | | | | | 12 | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-20A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | Poorly graded SAND (SP); dense; light gray; moist; fine SAND. <i>layer description continued from previous page</i> | X | S06 | 4 7 13 | 20 | 6 | | | 100 | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | X | S07 | 9 9 12 | 21 | | | | 100 | | | | |
| 31 | | | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | SILTY SAND (SM); dense; light gray; moist; fine SAND. | X | S08 | 9 16 16 | 32 | 15 | | | 100 | | | | |
| 36 | | | | | | | | | | | | | | | |
| 37 | | | Bottom of borehole at 36.5 ft bgs. Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | |
| 41 | | | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-20B

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

| | | | | |
|---|--|----------------------------------|--|--------------------------|
| LOGGED BY L. S. Bhangoor | BEGIN DATE 4-4-12 | COMPLETION DATE 4-4-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 52' 50" / -119° 57' 55" | HOLE ID S0040A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 55 (Rig #35) | | BOREHOLE DIAMETER 6 1/2" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 93% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 101.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | SILTY SAND (SM); very dense; brown; moist; medium SAND. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=62) |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | S01 | 7 | 50/6" | | | | 56 | | | | |
| 3 | 3 | | | | | | | 5 | 128 | | | | | | %LEL/PPM=0, %O2=21.0, %H2S=0, %CO=0 |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | | S02 | 21 | 16 | | | | 67 | | | | |
| 6 | 6 | | Medium dense; yellowish brown; (+#4=0%, -#200=41%). | | | 12 | | 5 | 112 | | | | | | CR, PA |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | Poorly graded SAND (SP); medium dense; light yellowish brown; moist; medium to fine SAND. | | S03 | 7 | 10 | | | | 78 | | | | |
| 11 | 11 | | | | | 14 | | 2 | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 6 | 16 | | | | 67 | | | | |
| 16 | 16 | | Dense; (+#4=0%, -#200=2%). | | | 16 | | 1 | | | | | | | %LEL/PPM=0, %O2=21.1, %H2S=0, %CO=0 PA |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | SILT (ML); hard; light brownish gray; moist; trace fine SAND. | | | | | | | | | | | | |
| 20 | 20 | | | | S05 | 12 | 15 | | | | 72 | | | | |
| 21 | 21 | | | | | 16 | | 12 | | | | | | | DS |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-24A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | SILT (ML); hard; light brownish gray; moist; trace fine SAND. <i>layer description continued from previous page</i> | X | S06 | 20 22 23 | 45 | | | | 78 | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | Nonplastic fines. | X | S07 | 11 16 18 | 34 | | | | 100 | | | | |
| 32 | | | | | | | | 8 | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | Hard; light brownish gray. | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | | | | X | S08 | 18 40 60 | 100 | | | | 78 | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | Well-graded SAND with SILT (SW-SM); dense; brown; moist; fine SAND. | | | | | | | | | | | | |
| 41 | | | (+ #4=0%, - #200=12%). | X | S09 | 8 11 16 | 27 | | | | 100 | | | | |
| 42 | | | | | | | | 5 | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | SANDY SILT (ML); hard; yellowish brown; moist; yellow mottling. | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | | X | S10 | 24 60/6" | 60/6 | | | | 72 | | | | |
| 47 | | | | | | | | 34 | 85 | | | | | | |
| 48 | | | SILTY SAND (SM); very dense; brown; moist; fine SAND. | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | X | S11 | 9 19 16 | 35 | | | | 78 | | | | |
| 52 | | | | | | | | 28 | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | SANDY SILT (ML); hard; brown with white mottling; moist; fine SAND. | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-24B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SANDY SILT (ML); hard; brown with white mottling; moist; fine SAND. <i>layer description continued from previous page</i> (+4=0%, #200=55%). | X | S12 | 19 60/6" | 60/6 | | | | 117 | | | | |
| 57 | | | | | | | | 17 | 104 | | | | | | PA |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | |
| 61 | | | Nonplastic fines. | X | S13 | 14 22 29 | 51 | | | | 89 | | | | |
| 62 | | | | | | | | 26 | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | SILTY SAND (SM); very dense; light brown; moist; fine SAND. | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | X | S14 | 17 34 60 | 94 | | | | 72 | | | | |
| 72 | | | | | | | | 14 | 97 | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | SILT with SAND (ML); hard; light gray; moist; fine SAND. | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | |
| 81 | | | | X | S15 | 14 20 24 | 44 | | | | 83 | | | | |
| 82 | | | | | | | | 8 | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-24C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SILT with SAND (ML); hard; light gray; moist; fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | X | S16 | 22 40 50/3" | 90/9" | | | | 81 | | | | |
| 92 | | | | | | | | 11 | 99 | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | X | S17 | 12 17 21 | 38 | | | | 78 | | | | |
| 102 | | | | | | | | 16 | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | | | | | | | | | | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

Bottom of borehole at 101.5 ft bgs.
Groundwater was not encountered during drilling.
Piezometer installed.

PI

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-24D

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

| | | | | |
|---|--|-----------------------------------|---|--------------------------|
| LOGGED BY V. Santos | BEGIN DATE 4-27-12 | COMPLETION DATE 4-27-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 53' 4" / -119° 57' 55" | HOLE ID S0041A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 45 | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 92% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 31.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|--------------------------------------|
| 0 | 0 | | SILTY SAND (SM); loose; brown; moist; fine SAND. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=54) |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | S01 | 3 | 6 | | | | 100 | | | | |
| 3 | 3 | | | | | 2 | | | | | | | | | |
| 4 | 4 | | | | | 4 | | | | | | | | | |
| 5 | 5 | | SILT (ML); hard; gray; moist. | | S02 | 21 | 40 | | | | 100 | | | | |
| 6 | 6 | | | | | 24 | | 18 | | | | | | | |
| 7 | 7 | | | | | 16 | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | SILTY SAND (SM); very dense; orange brown; moist. | | S03 | 48 | 50/4 | | | | 100 | | | | CL |
| 11 | 11 | | | | | 50/4" | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 13 | 22 | | | | 100 | | | | |
| 16 | 16 | | Dense; (+#4=0%, -#200=23%). | | | 10 | | 10 | | | | | | | PA |
| 17 | 17 | | | | | 12 | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | S05 | 5 | 21 | | | | 100 | | | | |
| 21 | 21 | | Light brownish gray. | | | 10 | | 9 | | | | | | | |
| 22 | 22 | | | | | 11 | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-25A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | SANDY SILT (ML); hard; gray; moist. | X | S06 | 10 18 20 | 38 | | | | 100 | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | (#200=60%). | X | S07 | 12 15 26 | 41 | | | | 100 | | | | |
| 32 | | | Bottom of borehole at 31.5 ft bgs. Groundwater was not encountered during drilling. | | | | | 16 | 110 | | | | | PA | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | | | | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | |
| 41 | | | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-25B

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

| | | | | |
|---|--|-----------------------------------|--|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 4-16-12 | COMPLETION DATE 4-16-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 53' 41" / -119° 58' 56" | HOLE ID S0046A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 55 (Rig #10) | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 88.0 ft | | TOTAL DEPTH OF BORING 116.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 0 | 0 | | SILT (ML); medium stiff, brown; moist. | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | | | S01 | 2 2 5 | 7 | | | | 89 | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | | S02 | 24 19 20 | 39 | | | | 78 | | | | |
| 6 | 6 | | Hard; light gray. | | | | | | | | | | | | |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | S03 | 8 10 10 | 20 | | | | 89 | | | | |
| 11 | 11 | | Very stiff; grayish brown. | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 10 12 16 | 28 | | | | 89 | | | | |
| 16 | 16 | | Hard; (LL=29, PI=5). | | | | | 26 | | | | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | Poorly graded SAND (SP); very dense; light gray; moist; medium to fine SAND. | | | | | | | | | | | | |
| 20 | 20 | | | | S05 | 8 16 20 | 36 | | | | 78 | | | | |
| 21 | 21 | | | | | | | | | | | | | | |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-27A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | Poorly graded SAND (SP); very dense; light gray; moist; medium to fine SAND. <i>layer description continued from previous page</i> | | S06 | 15 20 24 | 44 | | | | 100 | | | | |
| 26 | | | Light yellowish brown. | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | SILTY SAND (SM); loose; light gray; moist; fine SAND; (+#4=0%, -#200=45). | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | S07 | 3 3 3 | 6 | | | | 89 | | | | |
| 31 | | | | | | | | 8 | | | | | | | PA |
| 32 | | | SANDY SILT (ML); very stiff; brown; moist; low plasticity fines. | | S08 | 3 9 9 | 18 | | | | 89 | | | | PI |
| 33 | | | (LL=34, PI=7). | | | | | 30 | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | | | S09 | 30 16 27 | 43 | | | | 89 | | | | |
| 36 | | | Hard; dark gray; nonplastic fines. | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | | S10 | 10 9 10 | 19 | | | | 78 | | | | PA |
| 41 | | | Very stiff; brown; (+#4=0%, -#200=54). | | | | | 14 | 97 | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | S11 | 8 9 9 | 18 | | | | 89 | | | | |
| 46 | | | SILTY SAND (SM); medium dense; brownish gray; moist; fine SAND. | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | S12 | 7 11 16 | 27 | | | | 67 | | | | |
| 51 | | | Dense; brownish gray. | | | | | 19 | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

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CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1

FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-27B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILTY SAND (SM); medium dense; brownish gray; moist; fine SAND. <i>layer description continued from previous page</i> | X | S13 | 10 17 24 | 41 | | | | 89 | | | | DS |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | SANDY SILT (ML); hard; dark brown; moist; fine GRAVEL; fine SAND. | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | PA |
| 60 | | | | X | S14 | 6 5 29 | 34 | | | | 78 | | | | |
| 61 | | | | | | | | | | | | | | | |
| 62 | | | Brownish gray. | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | SILTY SAND with GRAVEL (SM); medium dense; dark brown; moist; coarse to fine GRAVEL; coarse to fine SAND. | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | X | S15 | 9 4 9 | 13 | | | | 78 | | | | |
| 71 | | | (+ #4=30%; - #200=15%). | | | | | 8 | | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | X | S16 | 10 9 10 | 19 | | | | 100 | | | | |
| 76 | | | Coarse SAND. | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | |
| 81 | | | SILT (ML); hard; brownish gray; moist. | X | S17 | 9 19 34 | 53 | | | | 89 | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

(continued)



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1

FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-27C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | Poorly graded SAND with SILT (SP-SM); dense; yellowish brown; moist; coarse to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | X | S18 | 12 12 15 | 27 | 6 | | | 100 | | | | |
| 92 | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | X | S19 | 15 14 13 | 27 | | | | 78 | | | | |
| 102 | | | | | | | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | | X | S20 | 10 9 11 | 20 | 8 | | | 78 | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | X | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-27D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| | 116 | | Poorly graded SAND with SILT (SP-SM); dense; yellowish brown; moist; coarse to fine SAND. <i>layer description continued from previous page</i> | X | S21 | 9 11 12 | 23 | | | | 100 | | | | |
| | 117 | | Bottom of borehole at 116.5 ft bgs. Groundwater was encountered at 88 ft during drilling. Geophysical Measurements performed by Geovision. | | | | | | | | | | | | |
| | 118 | | | | | | | | | | | | | | |
| | 119 | | | | | | | | | | | | | | |
| | 120 | | | | | | | | | | | | | | |
| | 121 | | | | | | | | | | | | | | |
| | 122 | | | | | | | | | | | | | | |
| | 123 | | | | | | | | | | | | | | |
| | 124 | | | | | | | | | | | | | | |
| | 125 | | | | | | | | | | | | | | |
| | 126 | | | | | | | | | | | | | | |
| | 127 | | | | | | | | | | | | | | |
| | 128 | | | | | | | | | | | | | | |
| | 129 | | | | | | | | | | | | | | |
| | 130 | | | | | | | | | | | | | | |
| | 131 | | | | | | | | | | | | | | |
| | 132 | | | | | | | | | | | | | | |
| | 133 | | | | | | | | | | | | | | |
| | 134 | | | | | | | | | | | | | | |
| | 135 | | | | | | | | | | | | | | |
| | 136 | | | | | | | | | | | | | | |
| | 137 | | | | | | | | | | | | | | |
| | 138 | | | | | | | | | | | | | | |
| | 139 | | | | | | | | | | | | | | |
| | 140 | | | | | | | | | | | | | | |
| | 141 | | | | | | | | | | | | | | |
| | 142 | | | | | | | | | | | | | | |
| | 143 | | | | | | | | | | | | | | |
| | 144 | | | | | | | | | | | | | | |
| | 145 | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-27E

| | | | | |
|---|---|-----------------------------------|--|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 4-20-12 | COMPLETION DATE 4-20-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 55' 24" / -119° 58' 51" | HOLE ID S0056A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 55 (Rig #10) | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 100.0 ft | | TOTAL DEPTH OF BORING 101.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|--|
| 0 | 0 | | SILT (ML); medium stiff, dark reddish brown; moist; trace coarse to fine GRAVEL; up to 3/4" diameter. | | | | | | | | | | | | Hand Augered 0' to 5'. |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | | | | | | | | | | | | |
| 6 | 6 | | Hard; light brown; oxide staining. | | S01 | 11 36 50/3" | 86/9" | | | | 107 | | | | Switched to mud Rotary wash drilling at 5' |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | SILTY SAND (SM); very dense; dark reddish brown; moist; medium to fine SAND. | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | | | | |
| 11 | 11 | | | | S02 | 25 37 50/5" | 87/11" | | | | 82 | | | | %LEL/PPM=0, %O2=20.9, %H2S=0, %CO=0 |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | | | | |
| 16 | 16 | | Light reddish brown. | | S03 | 9 23 48 | 71 | | 12 | 113 | 89 | | | | CR |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | | |
| 21 | 21 | | Dense; medium SAND. | | S04 | 11 10 11 | 21 | | | | 78 | | | | |
| 22 | 22 | | SILT with SAND (ML); hard; light gray; moist; fine SAND. | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-30A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | SILT with SAND (ML); hard; light gray; moist; fine SAND. <i>layer description continued from previous page</i> | | | 6 18 36 | 54 | | | | 0 | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | S05 | 7 18 28 | 46 | | | | 89 | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | Light gray; (+#4=0%, #200=79%). | | | | | 11 | 87 | | | | | | PA |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | | | S06 | 9 32 39 | 71 | | | | 89 | | | | |
| 32 | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | SILTY SAND (SM); very dense; light brown; moist; fine SAND; oxide staining. | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | | | | | S07 | 8 27 38 | 65 | | | | 78 | | | | |
| 37 | | | | | | | | 18 | 97 | | | | | | C |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | SILT with SAND (ML); hard; light yellowish brown; moist; fine SAND. | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | |
| 41 | | | | | S08 | 28 19 18 | 37 | | | | 100 | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | Light gray. | | S09 | 12 20 43 | 63 | | | | 100 | | | | |
| 47 | | | | | | | | 22 | 78 | | | | | | |
| 48 | | | SILTY SAND (SM); dense; light gray; moist; fine SAND. | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | | S10 | 7 15 18 | 33 | | | | 89 | | | | PA |
| 52 | | | (+#4=0%, #200=22%). | | | | | 16 | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | SILT (ML); hard; light gray; moist; trace fine SAND; oxide staining. | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-30B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILT (ML); hard; light gray; moist; trace fine SAND; oxide staining. <i>layer description continued from previous page</i> | X | S11 | 24 46 50/2" | 96/8" | 5 | 78 | | 121 | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | |
| 61 | | | | X | S12 | 15 17 23 | 40 | | | | 78 | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | Poorly graded SAND with SILT (SP-SM); very dense; light gray; moist; coarse to fine SAND. | X | S13 | 16 35 35 | 70 | | | | 78 | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | | | | | | | | | | | | |
| 81 | | | Medium dense; medium to fine SAND; (+#4=0%; #200=7%). | X | S14 | 10 7 11 | 18 | 9 | | | 67 | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1

FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-30C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | Poorly graded SAND with SILT (SP-SM); fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | S15 | 12 | 53 | | | | 83 | | | | |
| 91 | | | | | | 23 | | | | | | | | | |
| 92 | | | SILT (ML); hard; light gray; moist; fine SAND. | | | 30 | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | Lean CLAY with SAND (CL); hard; dark brown; moist. | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | | S16 | 5 | 29 | | | | 89 | | | | |
| 102 | | | (LL=36; PI=15). | | | 11 | | | | | | | | | PI |
| 103 | | | Bottom of borehole at 101.5 ft bgs. Groundwater was encountered at 100 ft during drilling. Piezometer installed. | | | 18 | | 24 | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | | | | | | | | | | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-30D

| | | | | |
|--|--|----------------------------------|---|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 5-7-12 | COMPLETION DATE 5-7-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 56' 43" / -120° 0' 35" | HOLE ID S0066A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 45 | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 92% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 31.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | SILTY SAND (SM); dense; light brown; moist; medium to fine SAND. | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | | | S01 | 10 24 20 | 44 | | | | 78 | | | | |
| 4 | 4 | | | | | | | 3 | 115 | | | | | | %LEL/PPM=0, %O2=20.7, %H2S=0, %CO=0 CR |
| 5 | 5 | | Medium dense. | | S02 | 10 14 13 | 27 | | | | 89 | | | | |
| 6 | 6 | | | | | | | 5 | 118 | | | | | | |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | SANDY SILT (ML); hard; light brown; moist. | | S03 | 10 23 20 | 43 | | | | 89 | | | | |
| 11 | 11 | | | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 15 23 19 | 42 | | | | 78 | | | | |
| 16 | 16 | | Fine GRAVEL; (+#4=0%, -#200=70%). | | | | | 11 | 105 | | | | | | PA |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | SILT (ML); hard; gray; moist; fine GRAVEL. | | S05 | 8 16 18 | 34 | | | | 89 | | | | |
| 21 | 21 | | | | | | | | | | | | | | |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | Well-graded SAND with SILT (SW-SM); medium dense; light whitish brown; moist. | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority

CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-33A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | Well-graded SAND with SILT (SW-SM); medium dense; light whitish brown; moist. <i>layer description continued from previous page</i> Coarse to medium SAND; weak cementation; (+#4=0%, -#200=9%). | | S06 | 6 3 13 | 16 | | | | 78 | | | | PA |
| 26 | | | | | | | | 3 | 100 | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | | | S07 | 7 12 13 | 25 | | | | 67 | | | | |
| 32 | | | Bottom of borehole at 31.5 ft bgs. Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | | | | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | |
| 41 | | | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-33B

| | | | | |
|---|--|----------------------------------|---|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 5-7-12 | COMPLETION DATE 5-7-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 56' 58" / -120° 0' 54" | HOLE ID S0068A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 45 | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 92% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 31.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | SILT (ML); hard; light redish brown; moist. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=12) |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | S01 | 18 | 82/12" | | | | 78 | | | | |
| 3 | 3 | | | | | 32 | | | | | | | | | |
| 4 | 4 | | | | | 50/6" | | | | | | | | | %LEL/PPM=0, %O2=20.9, %H2S=0, %CO=0 |
| 5 | 5 | | CLAYEY SAND (SC); dense; brown; moist. | | S02 | 14 | 37 | | | | 89 | | | | PA |
| 6 | 6 | | (+ #4=0%, -#200=32%). | | | 30 | | 9 | 128 | | | | | | |
| 7 | 7 | | | | | 7 | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | S03 | 40 | 60/12" | | | | 89 | | | | PA |
| 11 | 11 | | Very dense; (-#200=22%). | | | 10 | | | | | | | | | |
| 12 | 12 | | | | | 50/6" | | 12 | 92 | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | SILTY SAND (SM); very dense; light brown; moist. | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 22 | 80/12" | | | | 78 | | | | |
| 16 | 16 | | Medium to fine SAND. | | | 30 | | | | | | | | | CL |
| 17 | 17 | | | | | 50/6" | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | S05 | 14 | 44 | | | | 78 | | | | |
| 21 | 21 | | Dense. | | | 32 | | | | | | | | | |
| 22 | 22 | | | | | 12 | | 20 | 88 | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-34A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| | 25 | | SILTY SAND (SM); very dense; light brown; moist. <i>layer description continued from previous page</i> | | S06 | 50/3" | REF | | | | 100 | | | | |
| | 26 | | Very dense. | | | | | | | | | | | | |
| | 27 | | | | | | | | | | | | | | |
| | 28 | | Poorly graded SAND (SP); dense; light gray; moist; coarse to fine SAND. | | | | | | | | | | | | |
| | 29 | | | | | | | | | | | | | | |
| | 30 | | | | | | | | | | | | | | |
| | 31 | | (+ #4=0%, #200=4%). | | S07 | 9 15 20 | 35 | 5 | 96 | | 89 | | | | PA |
| | 32 | | Bottom of borehole at 31.5 ft bgs. Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| | 33 | | | | | | | | | | | | | | |
| | 34 | | | | | | | | | | | | | | |
| | 35 | | | | | | | | | | | | | | |
| | 36 | | | | | | | | | | | | | | |
| | 37 | | | | | | | | | | | | | | |
| | 38 | | | | | | | | | | | | | | |
| | 39 | | | | | | | | | | | | | | |
| | 40 | | | | | | | | | | | | | | |
| | 41 | | | | | | | | | | | | | | |
| | 42 | | | | | | | | | | | | | | |
| | 43 | | | | | | | | | | | | | | |
| | 44 | | | | | | | | | | | | | | |
| | 45 | | | | | | | | | | | | | | |
| | 46 | | | | | | | | | | | | | | |
| | 47 | | | | | | | | | | | | | | |
| | 48 | | | | | | | | | | | | | | |
| | 49 | | | | | | | | | | | | | | |
| | 50 | | | | | | | | | | | | | | |
| | 51 | | | | | | | | | | | | | | |
| | 52 | | | | | | | | | | | | | | |
| | 53 | | | | | | | | | | | | | | |
| | 54 | | | | | | | | | | | | | | |
| | 55 | | | | | | | | | | | | | | |

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-34B

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

| | | | | |
|--|--|----------------------------------|---|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 5-7-12 | COMPLETION DATE 5-7-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 57' 42" / -120° 1' 10" | HOLE ID S0074A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 45 | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 92% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 30.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|--------------------------------------|
| 0 | 0 | | SILTY SAND (SM); medium dense; reddish brown; moist. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=12) |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | (-#200=49%). | | S01 | 5 6 12 | 18 | 11 | 117 | | 78 | | | | CR, PA |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | Dense. | | S02 | 6 17 23 | 40 | | | | 89 | | | | |
| 6 | 6 | | | | | | | | | | | | | | |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | S03 | 5 11 12 | 23 | 11 | 88 | | 100 | | | | PA |
| 11 | 11 | | Medium dense; (-#200=47%). | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | Lean CLAY (CL); hard; dark gray; moist. | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 10 17 27 | 44 | 21 | 107 | UC = 4.94 | 100 | | | | |
| 16 | 16 | | | | | | | | | | | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | | |
| 21 | 21 | | SILTY SAND (SM); dense; dark gray; moist; fine SAND. | | S05 | 9 20 21 | 41 | | | | 78 | | | | |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | Lean CLAY (CL); hard; dark gray; moist; low plasticity fines. | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)


CALIFORNIA
High-Speed Rail Authority

CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-36A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | Lean CLAY (CL); hard; dark gray; moist; low plasticity fines. <i>layer description continued from previous page</i> (LL=46 PI=20). | | S06 | 15 | 80 | | | | 100 | | | | |
| 26 | | | | | | 30 | | 22 | 105 | | | | | | PI |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | SILTY SAND (SM); very dense; brown; moist. | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | S07 | 50/6" | REF | | | | 100 | | | | |
| 31 | | | Bottom of borehole at 30.5 ft bgs. Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | | | | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | |
| 41 | | | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-36B

| | | | | |
|---|--|----------------------------------|---|--|
| LOGGED BY L.S. Bhangoo | BEGIN DATE 4-9-12 | COMPLETION DATE 4-9-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 58' 55" / -120° 1' 35" | HOLE ID S0082R |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | | SURFACE ELEVATION |
| DRILLING METHOD Rotary Wash | DRILL RIG CME 55 (Rig #35) | | | BOREHOLE DIAMETER 6 1/2" |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | | HAMMER EFFICIENCY, ERI 93% |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 48.0 ft | | | TOTAL DEPTH OF BORING 151.5 ft |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | SILTY SAND (SM); medium dense; brown; moist; fine SAND. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=70) |
| 1 | 1 | | | | S01 | 3 | 11 | | | | 89 | | | | %LEL/PPM=0, %O2=21.2, %H2S=0, %CO=0 |
| 2 | 2 | | | | | 4 | | | | | | | | | |
| 3 | 3 | | | | | 7 | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | Very dense. | | S02 | 50/2" | REF | | | | 100 | | | | |
| 6 | 6 | | SANDY SILT (ML); hard; yellowish brown; moist; fine SAND; moderate to strong cementation. | | | | | | | | | | | | CR |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | | S03 | 6 | 51 | | | | 78 | | | | |
| 11 | 11 | | | | | 18 | | 9 | | | | | | | |
| 12 | 12 | | | | | 33 | | | | | | | | | |
| 13 | 13 | | Well-graded SAND with SILT (SW-SM); medium dense; brown; moist; coarse to medium SAND. | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | S04 | 6 | 22 | | | | 100 | | | | |
| 16 | 16 | | | | | 10 | | | | | | | | | |
| 17 | 17 | | | | | 12 | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | %LEL/PPM=0, %O2=21.1, %H2S=0, %CO=0 PA |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | S05 | 3 | 11 | | | | 100 | | | | |
| 21 | 21 | | (+ #4=0%, - #200=6%). | | | 5 | | 3 | | | | | | | |
| 22 | 22 | | | | | 6 | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-41A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | Poorly graded SAND with SILT (SP-SM); medium dense; brown; moist. | | S06 | 4 12 18 | 30 | | | | 100 | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | S07 | 3 5 7 | 12 | | | | 100 | | | | |
| 31 | | | Some GRAVEL; gravel size up to 3/4" (+#4=3%, -#200=12%). | | | | | 5 | | | | | | | PA |
| 32 | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | SILTY SAND (SM); medium dense; reddish brown; moist. | | S08 | 3 5 9 | 14 | | | | 100 | | | | DS |
| 36 | | | | | | | | | | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | Well-graded SAND with SILT (SW-SM); medium dense; brown; moist; coarse to medium SAND. (+#4=0%, -#200=11%). | | S09 | 3 8 11 | 19 | | | | 89 | | | | PA |
| 41 | | | | | | | | 5 | | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | S10 | 12 15 18 | 33 | | | | 100 | | | | |
| 46 | | | Dense. | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | S11 | 3 6 15 | 21 | | | | 89 | | | | PA |
| 51 | | | Poorly graded SAND with SILT (SP-SM); dense; brown; moist; (+#4=0%, -#200=10%). | | | | | 18 | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | Very dense; medium to fine SAND. | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-41B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 56 | | | Poorly graded SAND with SILT (SP-SM); dense; brown; moist; (+#4=0%, -#200=10%). <i>layer description continued from previous page</i> | X | S12 | 9 26 31 | 57 | | | | 72 | | | | Switched to mud Rotary wash drilling at 55' |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | | X | S13 | 9 12 16 | 28 | | | | 89 | | | | |
| 61 | | | Dense; trace GRAVEL; gravel size up to 1". | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | X | S14 | 16 21 27 | 48 | | | | 78 | | | | PA |
| 71 | | | Well-graded SAND with SILT and GRAVEL (SW-SM); dense; brown; moist; (+#4=29%, -#200=12%). | | | | | 11 | 129 | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | SANDY lean CLAY (CL); hard; brown; wet; low plasticity fines. | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | X | S15 | 16 33 45 | 78 | | | | 72 | | | | |
| 81 | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-41C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SANDY lean CLAY (CL); hard; brown; wet; low plasticity fines. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | X | S16 | 13 16 21 | 37 | | | | 67 | | | | |
| 92 | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | X | S17 | 19 24 39 | 63 | | | | 72 | | | | |
| 102 | | | | | | | | 21 | 107 | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | Low to medium plasticity fines. | X | S18 | 15 28 33 | 61 | | | | 67 | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-41D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | Poorly graded SAND with SILT (SP-SM); very dense; brown; moist. | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | | | S19 | 27 | 97/9" | | | | 87 | | | | |
| 121 | | | | | | 47 | | | | | | | | | |
| 122 | | | | | | 50/3" | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | | | | | | | | | | | | | |
| 130 | | | | | S20 | 36 | 97/9" | | | | 93 | | | | |
| 131 | | | Coarse to medium SAND. | | | 47 | | | | | | | | | |
| 132 | | | | | | 50/3" | | 14 | 120 | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | | | S21 | 44 | 95/8" | | | | 100 | | | | |
| 141 | | | Medium SAND; (hard to drill). | | | 45 | | | | | | | | | |
| 142 | | | | | | 50/2" | | | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | SANDY SILT (ML); hard; brown; wet. | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-41E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|-------------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | SANDY SILT (ML); hard; brown; wet. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | |
| 151 | | | | S22 | 20 33 50/1" | 83/7" | | 19 | 108 | | 100 | | | | |
| 152 | | | Bottom of borehole at 151.5 ft bgs. Groundwater was encountered at 48 ft during drilling. | | | | | | | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | | | | |
| 161 | | | | | | | | | | | | | | | |
| 162 | | | | | | | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |
| 166 | | | | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | |
| 171 | | | | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-41F

| | | | | |
|--|--|-----------------------------------|---|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 5-14-12 | COMPLETION DATE 5-14-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 58' 57" / -120° 1' 39" | HOLE ID S0083A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 55 (Rig #10) | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 46.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 0 | 0 | | SILTY SAND (SM); very dense; light brown; moist; fine SAND; weak cementation. | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | | | | | | | | | | | | |
| 6 | 6 | | Dense. | | | | | | | | | | | | |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | Poorly graded SAND with SILT (SP-SM); medium dense to dense; light reddish brown; moist; fine SAND; oxide staining. | | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | | | | |
| 11 | 11 | | | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | | | | |
| 16 | 16 | | Medium dense; grayish brown; coarse to fine SAND; (+#4=0%, #200=5%). | | | | | | | | | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | | |
| 21 | 21 | | SILTY SAND (SM); dense; light grayish brown; moist; medium to fine SAND; oxide staining. | | | | | | | | | | | | |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-42A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| | 25 | | SILTY SAND (SM); dense; light grayish brown; moist; medium to fine SAND; oxide staining. <i>layer description continued from previous page</i> | | S06 | 6 10 14 | 24 | | | | 100 | | | | |
| | 26 | | Poorly graded SAND with SILT (SP-SM); medium dense; light brown; moist; medium to fine SAND. | | | | | | | | | | | | DS |
| | 27 | | | | | | | | | | | | | | |
| | 28 | | | | | | | | | | | | | | |
| | 29 | | Light reddish brown; coarse to fine SAND; weak cementation. | | | | | | | | | | | | |
| | 30 | | | | S07 | 7 14 16 | 30 | | | | 100 | | | | |
| | 31 | | | | | | | | | | | | | | |
| | 32 | | | | | | | | | | | | | | |
| | 33 | | | | | | | | | | | | | | |
| | 34 | | | | | | | | | | | | | | |
| | 35 | | | | S08 | 8 15 21 | 36 | | | | 89 | | | | |
| | 36 | | Dense. | | | | | 5 | 113 | | | | | | |
| | 37 | | | | | | | | | | | | | | |
| | 38 | | | | | | | | | | | | | | |
| | 39 | | | | | | | | | | | | | | |
| | 40 | | | | S09 | 8 18 19 | 37 | | | | 78 | | | | |
| | 41 | | | | | | | | | | | | | | |
| | 42 | | | | | | | | | | | | | | |
| | 43 | | Well-graded SAND with SILT (SW-SM); medium dense; brown; moist. | | | | | | | | | | | | |
| | 44 | | | | | | | | | | | | | | |
| | 45 | | | | S10 | 8 10 19 | 29 | | | | 89 | | | | |
| | 46 | | (+ #4=1%, #200=8%). | | | | | 6 | 110 | | | | | | PA |
| | 47 | | Bottom of borehole at 46.5 ft bgs. Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| | 48 | | | | | | | | | | | | | | |
| | 49 | | | | | | | | | | | | | | |
| | 50 | | | | | | | | | | | | | | |
| | 51 | | | | | | | | | | | | | | |
| | 52 | | | | | | | | | | | | | | |
| | 53 | | | | | | | | | | | | | | |
| | 54 | | | | | | | | | | | | | | |
| | 55 | | | | | | | | | | | | | | |

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-42B

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

| | | | | |
|---|--|-----------------------------------|---|---------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 4-26-12 | COMPLETION DATE 4-26-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 59' 12" / -120° 1' 50" | HOLE ID S0086Ra |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Rotary Wash | DRILL RIG CME 55 (Rig #35) | | BOREHOLE DIAMETER 6 1/2" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS N/A | | TOTAL DEPTH OF BORING 151.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 0 | 0 | | SILTY SAND with GRAVEL (SM); very dense; brown; moist [FILL]. | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | ✱ | S01 | 50/5" | REF | | | | 60 | | | | |
| 3 | 3 | | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | ✱ | S02 | 50/5" | REF | | | | 200 | | | | |
| 6 | 6 | | | | | | | | | | | | | | |
| 7 | 7 | | | | | | | 15 | 115 | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | SANDY SILT (ML); hard; light brown; moist; trace SAND. | | | | | | | | | | | | |
| 11 | 11 | | | ✱ | S03 | 11 24 32 | 56 | | | UC = 5.8 | 78 | | | | |
| 12 | 12 | | | | | | | 10 | 125 | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | Well-graded SAND with GRAVEL (SW); dense; medium gray; moist; coarse to medium SAND. | | | | | | | | | | | | |
| 15 | 15 | | | ✱ | S04 | 9 19 20 | 39 | | | | 89 | | | | |
| 16 | 16 | | | | | | | | | | | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | | |
| 21 | 21 | | Poorly graded SAND (SP); medium dense; light gray; wet; trace GRAVEL; (+#4=7%-#200=2%). | ✱ | S05 | 3 8 9 | 17 | | | | 78 | | | | |
| 22 | 22 | | | | | | | 12 | 115 | | | | | | PA |
| 23 | 23 | | Well-graded SAND with SILT (SW-SM); medium dense; gray; moist; trace GRAVEL; (+#4=4%-#200=8%). | | | | | | | | | | | | |
| 24 | 24 | | | ✱ | S06 | 3 4 6 | 10 | | | | 89 | | | | PA |
| 25 | 25 | | | | | | | 13 | | | | | | | |

(continued)



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-44A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | Well-graded SAND with SILT (SW-SM); medium dense; gray; moist; trace GRAVEL; (+#4=4%-#200=8%). <i>layer description continued from previous page</i> | | S07 | 6 4 8 | 12 | | | | 89 | | | | |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | SILT (ML); stiff to very stiff, light gray; moist. | | | | | | | | | | | | |
| 30 | | | | | S08 | 2 7 10 | 17 | | | | 78 | | | | |
| 31 | | | | | | | | | | | | | | | |
| 32 | | | | | S09 | 3 4 5 | 9 | | | | 89 | | | | |
| 33 | | | Stiff. | | | | | 35 | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | | | S10 | 6 9 16 | 25 | | | | 100 | | | | |
| 36 | | | Very stiff; oxide staining. | | | | | 29 | 90 | | | | | | |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | SILTY SAND (SM); medium dense; light brown; moist; fine SAND. | | S11 | 6 12 12 | 24 | | | | 78 | | | | |
| 41 | | | | | | | | 20 | 93 | | | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | Fine SAND. | | S12 | 5 10 10 | 20 | | | | 89 | | | | |
| 46 | | | | | | | | 22 | 100 | | | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | Medium to fine SAND. | | S13 | 8 10 11 | 21 | | | | 100 | | | | |
| 51 | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-44B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | Fine SAND. SILTY SAND (SM); medium dense; light brown; moist; fine SAND. <i>layer description continued from previous page</i> | | S14 | 10 11 13 | 24 | | | | 89 | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | Poorly graded SAND with SILT (SP-SM); medium dense; light brown; moist; (+#4=0%-#200=7%). | | S15 | 6 12 17 | 29 | | | | 78 | | | | |
| 61 | | | | | | | | 18 | 107 | | | | | | PA |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | SILTY SAND (SM); medium dense; light grayish brown; fine SAND. | | S16 | 6 12 17 | 29 | | | | 78 | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | Dense; reddish brown. | | S17 | 14 21 28 | 49 | | | | 100 | | | | |
| 81 | | | | | | | | 20 | 110 | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-44C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SILTY SAND (SM); medium dense; light grayish brown; fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | Very dense; light brown. | | S18 | 18 | 72 | | | | 100 | | | | |
| 91 | | | | | | 32 | | | | | | | | | |
| 92 | | | | | | 40 | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | Dense. | | S19 | 16 | 51 | | | | 78 | | | | |
| 101 | | | | | | 24 | | | | | | | | | |
| 102 | | | | | | 27 | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | Dense to very dense; light gray. | | S20 | 12 | 53 | | | | 89 | | | | |
| 111 | | | | | | 23 | | 23 | 103 | | | | | | |
| 112 | | | | | | 30 | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-44D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | SILTY SAND (SM); medium dense; light grayish brown; fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | Very dense; coarse to medium SAND. | | S21 | 17 | 64 | | | | 78 | | | | |
| 121 | | | | | | 30 | | | | | | | | | |
| 122 | | | | | | 34 | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | CLAYEY SAND (SC); very dense; light gray; moist. | | | | | | | | | | | | |
| 130 | | | | | S22 | 15 | 63 | | | | 89 | | | | |
| 131 | | | (+ #4=0% - #200=30%). | | | 28 | | 17 | 115 | | | | | | PA |
| 132 | | | | | | 35 | | | | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | Oxide staining. | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | SILTY SAND (SM); very dense; orange brown; moist; oxide staining. | | S23 | 17 | 69 | | | | 100 | | | | |
| 141 | | | | | | 28 | | | | | | | | | |
| 142 | | | | | | 41 | | | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-44E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|----------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | SILTY SAND (SM); very dense; orange brown; moist; oxide staining. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | |
| 151 | | | | S24 | 20 28 38 | 66 | | 16 | 115 | | 100 | | | | |
| 152 | | | Bottom of borehole at 151.5 ft bgs. Groundwater was not measured due to rotary wash drilling method. | | | | | | | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | | | | |
| 161 | | | | | | | | | | | | | | | |
| 162 | | | | | | | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |
| 166 | | | | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | |
| 171 | | | | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-44F

| | | | | |
|---|--|-----------------------------------|---|--|
| LOGGED BY A. Bakane | BEGIN DATE 4-23-12 | COMPLETION DATE 4-24-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 59' 22" / -120° 1' 58" | HOLE ID S0087Aa |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | | SURFACE ELEVATION |
| DRILLING METHOD Hollow-Stem Auger - Rotary Wash | DRILL RIG CME 55 (Rig #10) | | | BOREHOLE DIAMETER 8" |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | | HAMMER EFFICIENCY, ERI 87% |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS 86.0 ft | | | TOTAL DEPTH OF BORING 151.5 ft |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | SILT (ML); light reddish brown; moist; 0' to 5' Bulk Sample. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=8) |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | SILTY SAND (SM); very dense; light reddish brown; moist; fine SAND. | ✱ | S01 | 50/5" | REF | | | | 100 | | | | %LEL/PPM=0, %O2=20.9, %H2S=0, %CO=0 |
| 6 | 6 | | | | | | | | | | | | | | |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | | ✱ | S02 | 35 50/3" | 50/3 | 8 | 127 | | 100 | | | | CR |
| 11 | 11 | | | | | | | | | | | | | | |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | ✱ | S03 | 50/6" | REF | | | | 100 | | | | |
| 16 | 16 | | Light brown; coarse to medium SAND. | | | | | | | | | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | | |
| 21 | 21 | | Poorly graded SAND with SILT (SP-SM); medium dense to dense; light brown; moist; medium to fine SAND. (+#4=0%, #200=7%). | ✱ | S04 | 10 14 18 | 32 | | | | 78 | | | | PA Switched to mud Rotary wash drilling at 21.5' |
| 22 | 22 | | | | | | | 15 | 99 | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority

CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-45A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | 25 | | Poorly graded SAND with SILT (SP-SM); medium dense to dense; light brown; moist; medium to fine SAND. <i>layer description continued from previous page</i> | | S05 | 5 9 12 | 21 | | | | 89 | | | | |
| 26 | 26 | | Medium dense; coarse to medium SAND. | | | | | | | | | | | | DS |
| 27 | 27 | | | | | | | | | | | | | | |
| 28 | 28 | | | | | | | | | | | | | | |
| 29 | 29 | | | | | | | | | | | | | | |
| 30 | 30 | | | | S06 | 6 10 17 | 27 | | | | 89 | | | | |
| 31 | 31 | | | | | | | | | | | | | | |
| 32 | 32 | | | | | | | | | | | | | | |
| 33 | 33 | | | | | | | | | | | | | | |
| 34 | 34 | | | | | | | | | | | | | | |
| 35 | 35 | | CLAYEY SAND (SC); medium dense; light brown; moist; (+#4=0%, -#200=20%). | | S07 | 4 4 8 | 12 | | | | 78 | | | | PA |
| 36 | 36 | | | | | | | 17 | | | | | | | |
| 37 | 37 | | | | | | | | | | | | | | |
| 38 | 38 | | | | | | | | | | | | | | |
| 39 | 39 | | | | | | | | | | | | | | |
| 40 | 40 | | Poorly graded SAND with SILT (SP-SM); medium dense; light brown; moist. | | S08 | 8 11 13 | 24 | | | | 78 | | | | DS |
| 41 | 41 | | | | | | | | | | | | | | |
| 42 | 42 | | | | | | | | | | | | | | |
| 43 | 43 | | | | | | | | | | | | | | |
| 44 | 44 | | | | | | | | | | | | | | |
| 45 | 45 | | | | S09 | 7 16 19 | 35 | | | | 89 | | | | |
| 46 | 46 | | Very dense; medium to fine SAND. | | | | | 8 | | | | | | | |
| 47 | 47 | | | | | | | | | | | | | | |
| 48 | 48 | | | | | | | | | | | | | | |
| 49 | 49 | | | | | | | | | | | | | | |
| 50 | 50 | | | | S10 | 10 17 19 | 36 | | | | 78 | | | | |
| 51 | 51 | | Dense; yellowish brown. | | | | | | | | | | | | |
| 52 | 52 | | Lean CLAY (CL); medium stiff; grayish brown; moist. | | | | | | | | | | | | |
| 53 | 53 | | | | | | | | | | | | | | |
| 54 | 54 | | | | | | | | | | | | | | |
| 55 | 55 | | | | | | | | | | | | | | |

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**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-45B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | Lean CLAY (CL); medium stiff, grayish brown; moist. <i>layer description continued from previous page</i> (LL=43, PI=18). | X | S11 | Push 2 3 | 5 | 45 | | | 89 | | | | PI |
| 57 | | | | | S12 | 2 4 6 | 10 | | | | 89 | | | | |
| 58 | | | Stiff, light gray; trace fine SAND. | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | Poorly graded SAND with SILT (SP-SM); medium dense; brown; wet. | X | S13 | 7 13 15 | 28 | 8 | | | 78 | | | | PA |
| 61 | | | (+ #4=0%, - #200=9%). | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | SILT (ML); very stiff, light gray; moist. | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | X | S14 | 6 7 13 | 20 | | | | 89 | | | | C |
| 71 | | | | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | SILTY SAND (SM); dense; light gray; moist; fine SAND. | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | X | S15 | 8 13 19 | 32 | 14 | | | 89 | | | | PA |
| 81 | | | (+ #4=0%, - #200=43%). | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-45C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SILTY SAND (SM); dense; light gray; moist; fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | SILTY SAND (SM); very dense; light brown; wet; medium to fine SAND. | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | S16 | 11 | 44 | | | | 89 | | | | |
| 91 | | | | | | 16 | | | | | | | | | |
| 92 | | | | | | 28 | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | Yellowish brown; trace fine GRAVEL; coarse to medium SAND. | | S17 | 22 | 63 | | | | 78 | | | | |
| 101 | | | | | | 30 | | | | | | | | | |
| 102 | | | | | | 33 | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | S18 | 8 | 30 | | | | 89 | | | | |
| 111 | | | Dense; light reddish brown; medium to fine SAND. | | | 13 | | 23 | | | | | | | |
| 112 | | | | | | 17 | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-45D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 116 | | | SILTY SAND (SM); very dense; light brown; wet; medium to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 117 | | | | | | | | | | | | | | | |
| 118 | | | | | | | | | | | | | | | |
| 119 | | | | | | | | | | | | | | | |
| 120 | | | Poorly graded SAND with SILT (SP-SM); very dense; light gray; wet; coarse to medium SAND. | | S19 | 14 | 60 | | | | 78 | | | | |
| 121 | | | | | | 22 | | | | | | | | | |
| 122 | | | | | | 38 | | | | | | | | | |
| 123 | | | | | | | | | | | | | | | |
| 124 | | | | | | | | | | | | | | | |
| 125 | | | | | | | | | | | | | | | |
| 126 | | | | | | | | | | | | | | | |
| 127 | | | | | | | | | | | | | | | |
| 128 | | | | | | | | | | | | | | | |
| 129 | | | | | | | | | | | | | | | |
| 130 | | | | | S20 | 10 | 29 | | | | 89 | | | | |
| 131 | | | Dense; light yellowish brown; wet; coarse to medium SAND. | | | 11 | | | | | | | | | |
| 132 | | | | | | 18 | | | | | | | | | |
| 133 | | | | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | | | | |
| 135 | | | | | | | | | | | | | | | |
| 136 | | | | | | | | | | | | | | | |
| 137 | | | | | | | | | | | | | | | |
| 138 | | | | | | | | | | | | | | | |
| 139 | | | | | | | | | | | | | | | |
| 140 | | | | | S21 | 10 | 32 | | | | 78 | | | | |
| 141 | | | | | | 13 | | | | | | | | | |
| 142 | | | | | | 19 | | 20 | | | | | | | |
| 143 | | | | | | | | | | | | | | | |
| 144 | | | | | | | | | | | | | | | |
| 145 | | | | | | | | | | | | | | | |

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CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-45E

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 146 | | | Poorly graded SAND with SILT (SP-SM); very dense; light gray; wet; coarse to medium SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 147 | | | | | | | | | | | | | | | |
| 148 | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | |
| 151 | | | Light gray; fine SAND. | | S22 | 16 24 36 | 60 | | | | 89 | | | | |
| 152 | | | Bottom of borehole at 151.5 ft bgs. Groundwater was encountered at 86 ft during drilling. | | | | | | | | | | | | |
| 153 | | | | | | | | | | | | | | | |
| 154 | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | |
| 156 | | | | | | | | | | | | | | | |
| 157 | | | | | | | | | | | | | | | |
| 158 | | | | | | | | | | | | | | | |
| 159 | | | | | | | | | | | | | | | |
| 160 | | | | | | | | | | | | | | | |
| 161 | | | | | | | | | | | | | | | |
| 162 | | | | | | | | | | | | | | | |
| 163 | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | |
| 166 | | | | | | | | | | | | | | | |
| 167 | | | | | | | | | | | | | | | |
| 168 | | | | | | | | | | | | | | | |
| 169 | | | | | | | | | | | | | | | |
| 170 | | | | | | | | | | | | | | | |
| 171 | | | | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | |
| 173 | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | |



CALIFORNIA
High-Speed Rail Authority



CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-45F

| | | | | |
|--|--|-----------------------------------|---|---------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 4-26-12 | COMPLETION DATE 4-26-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 59' 44" / -120° 2' 25" | HOLE ID S0090Aa |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 55 (Rig #10) | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 31.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | SILTY SAND (SM); very dense; light brown; moist; trace fine GRAVEL. | | | | | | | | | | | | |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | |
| 3 | 3 | | | | S01 | 33 | 50/4" | | | | 100 | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | | | | | | | | | | | | |
| 6 | 6 | | Fine SAND; (+#4=0%, #200=37%). | | S02 | 20 | 97 | | | UC = 4.9 | 78 | | | | %LEL/PPM=0, %O2=20.3, %H2S=0, %CO=0 PA |
| 7 | 7 | | | | | | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | Poorly graded SAND (SP); medium dense; light gray; moist; coarse to medium SAND. | | | | | | | | | | | | |
| 10 | 10 | | | | | | | | | | | | | | |
| 11 | 11 | | (+#4=1%, #200=4%). | | S03 | 9 | 26 | | | | 89 | | | | PA |
| 12 | 12 | | | | | | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | | | | | | | | | | | |
| 16 | 16 | | | | S04 | 6 | 20 | | | | 78 | | | | |
| 17 | 17 | | | | | | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | | | | | | | | | | | |
| 21 | 21 | | Light brown; medium to fine SAND. | | S05 | 5 | 18 | | | | 78 | | | | DS |
| 22 | 22 | | | | | | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-48A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | 25 | | Poorly graded SAND (SP); medium dense; light gray; moist; coarse to medium SAND. <i>layer description continued from previous page</i> | | S06 | 6 | 18 | | | | 89 | | | | |
| 26 | 26 | | Coarse to medium SAND. | | | 7 | | | | | | | | | |
| 27 | 27 | | | | | 11 | | | | | | | | | |
| 28 | 28 | | | | | | | | | | | | | | |
| 29 | 29 | | | | | | | | | | | | | | |
| 30 | 30 | | | | | | | | | | | | | | |
| 31 | 31 | | Dense; light gray. | | S07 | 9 | 34 | | | | 100 | | | | |
| 32 | 32 | | Bottom of borehole at 31.5 ft bgs. | | | 15 | | | | | | | | | |
| 33 | 33 | | Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| 34 | 34 | | | | | | | | | | | | | | |
| 35 | 35 | | | | | | | | | | | | | | |
| 36 | 36 | | | | | | | | | | | | | | |
| 37 | 37 | | | | | | | | | | | | | | |
| 38 | 38 | | | | | | | | | | | | | | |
| 39 | 39 | | | | | | | | | | | | | | |
| 40 | 40 | | | | | | | | | | | | | | |
| 41 | 41 | | | | | | | | | | | | | | |
| 42 | 42 | | | | | | | | | | | | | | |
| 43 | 43 | | | | | | | | | | | | | | |
| 44 | 44 | | | | | | | | | | | | | | |
| 45 | 45 | | | | | | | | | | | | | | |
| 46 | 46 | | | | | | | | | | | | | | |
| 47 | 47 | | | | | | | | | | | | | | |
| 48 | 48 | | | | | | | | | | | | | | |
| 49 | 49 | | | | | | | | | | | | | | |
| 50 | 50 | | | | | | | | | | | | | | |
| 51 | 51 | | | | | | | | | | | | | | |
| 52 | 52 | | | | | | | | | | | | | | |
| 53 | 53 | | | | | | | | | | | | | | |
| 54 | 54 | | | | | | | | | | | | | | |
| 55 | 55 | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-48B

| | | | | |
|---|--|-----------------------------------|---|--------------------------|
| LOGGED BY V. Santos | BEGIN DATE 4-26-12 | COMPLETION DATE 4-26-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 59' 47" / -120° 2' 37" | HOLE ID S0091A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 45 | | BOREHOLE DIAMETER 8 in | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 92% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS Not Encountered | | TOTAL DEPTH OF BORING 31.5 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|--------------------------------------|
| 0 | 0 | | SILTY SAND (SM); very dense; reddish brown; moist; fine GRAVEL. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=26) |
| 1 | 1 | | | X | S01 | 8 | 50/5 | | | | 100 | | | | |
| 2 | 2 | | | | | 50/5" | | | | | | | | | |
| 3 | 3 | | | | | | | | | | | | | | |
| 4 | 4 | | | | | | | | | | | | | | |
| 5 | 5 | | | X | S02 | 9 | 42 | | | | 100 | | | | |
| 6 | 6 | | Dense; orange brown; trace coarse grained fragments. | | | 23 | | 7 | 103 | | | | | | CL |
| 7 | 7 | | | | | 19 | | | | | | | | | |
| 8 | 8 | | | | | | | | | | | | | | |
| 9 | 9 | | | | | | | | | | | | | | |
| 10 | 10 | | Poorly graded SAND (SP); medium dense; orange brown; moist; medium to fine SAND. | X | S03 | 6 | 16 | | | | 100 | | | | PA |
| 11 | 11 | | (+ #4=2%, - #200=4%). | | | 7 | | 3 | | | | | | | |
| 12 | 12 | | | | | 9 | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | X | S04 | 7 | 26 | | | | 100 | | | | |
| 16 | 16 | | Trace Lean CLAY. | | | 13 | | | | | | | | | |
| 17 | 17 | | | | | 13 | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | Dense; dark brown. | X | S05 | 9 | 22 | | | | 100 | | | | |
| 21 | 21 | | | | | 11 | | 11 | | | | | | | |
| 22 | 22 | | | | | 11 | | | | | | | | | |
| 23 | 23 | | | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-49A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| | 25 | | Poorly graded SAND with SILT (SP-SM); medium dense; light brownish gray; moist; medium to fine SAND. (+#4=0%, -#200=8%). | X | S06 | 6 9 9 | 18 | 5 | | | 100 | | | | PA |
| | 26 | | | | | | | | | | | | | | |
| | 27 | | | | | | | | | | | | | | |
| | 28 | | | | | | | | | | | | | | |
| | 29 | | | | | | | | | | | | | | |
| | 30 | | | | | | | | | | | | | | |
| | 31 | | Light orange brown; trace coarse grained fragments. | X | S07 | 7 9 10 | 19 | 4 | | | 100 | | | | |
| | 32 | | Bottom of borehole at 31.5 ft bgs. Groundwater was not encountered during drilling. | | | | | | | | | | | | |
| | 33 | | | | | | | | | | | | | | |
| | 34 | | | | | | | | | | | | | | |
| | 35 | | | | | | | | | | | | | | |
| | 36 | | | | | | | | | | | | | | |
| | 37 | | | | | | | | | | | | | | |
| | 38 | | | | | | | | | | | | | | |
| | 39 | | | | | | | | | | | | | | |
| | 40 | | | | | | | | | | | | | | |
| | 41 | | | | | | | | | | | | | | |
| | 42 | | | | | | | | | | | | | | |
| | 43 | | | | | | | | | | | | | | |
| | 44 | | | | | | | | | | | | | | |
| | 45 | | | | | | | | | | | | | | |
| | 46 | | | | | | | | | | | | | | |
| | 47 | | | | | | | | | | | | | | |
| | 48 | | | | | | | | | | | | | | |
| | 49 | | | | | | | | | | | | | | |
| | 50 | | | | | | | | | | | | | | |
| | 51 | | | | | | | | | | | | | | |
| | 52 | | | | | | | | | | | | | | |
| | 53 | | | | | | | | | | | | | | |
| | 54 | | | | | | | | | | | | | | |
| | 55 | | | | | | | | | | | | | | |

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-49B

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12

(continued)



| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | Lean CLAY (CL); very stiff, brown; moist; low plasticity fines. <i>layer description continued from previous page</i> (LL=33, PI=16). | X | S06 | 12 16 14 | 30 | 15 | 116 | | 83 | | | | PI |
| 26 | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | SANDY SILT (ML); very stiff, brown; moist; medium to fine SAND; (-#200=8%). | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | | X | S07 | 5 10 15 | 25 | | | | 78 | | | | |
| 32 | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | SILT (ML); very stiff, light brown; moist. | | | | | | | | | | | | |
| 36 | | | | X | S08 | 10 12 14 | 26 | 7 | 99 | | 72 | | | | |
| 37 | | | | | | | | | | | | | | | PI |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | |
| 41 | | | (LL=49, PI=11). | X | S09 | 6 11 14 | 25 | 46 | 74 | | 100 | | | | |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | Hard; light gray to light brown. | X | S10 | 42 43 49 | 92 | | | | 100 | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | |
| 51 | | | Light brown. | X | S11 | 18 28 45 | 73 | 17 | 83 | | 78 | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-51B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILT (ML); very stiff; light brown; moist. <i>layer description continued from previous page</i> | X | S12 | 36 50/2" | 50/2 | | | | 100 | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | SILTY SAND (SM); very dense; dark brown; moist; fine SAND. | X | S13 | 13 27 31 | 58 | | | | 78 | | | | |
| 61 | | | | | | | | 19 | 106 | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | X | S14 | 9 16 21 | 37 | | | | 83 | | | | |
| 71 | | | Dense; wet; medium to fine SAND. | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | Lean CLAY (CL); hard; brown; moist; low plasticity fines. | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | X | S15 | 26 28 32 | 60 | | | | 83 | | | | |
| 81 | | | | | | | | 14 | 120 | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

(continued)

Switched to mud Rotary Wash drilling at 68'

08/22/2012 ADDENDUM 4 - RFP HSR 11-16

PCI-CT 5 BR 2009-138-450.GPJ DATA TEMPLATE.GDT 6/29/12



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-51C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SILTY SAND (SM); very dense; brown; wet; medium to fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | X | S16 | 20 32 40 | 72 | | | | 89 | | | | |
| 92 | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | | | | | | | | | | | | | |
| 101 | | | | X | S17 | 16 23 28 | 51 | | | | 89 | | | | |
| 102 | | | | | | | | | | | | | | | |
| 103 | | | | | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | SILT (ML); hard; brown; moist; low plasticity fines. | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | | X | S18 | 24 44 50/5" | 94/11" | | | | 100 | | | | |
| 112 | | | | | | | | 19 | 111 | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | SILTY SAND (SM); very dense; brown; wet. | | | | | | | | | | | | |
| 115 | | | | X | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-51D

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| | 116 | | SILTY SAND (SM); very dense; brown; wet. <i>layer description continued from previous page</i> | ✱ | S19 | 25 50/5" | 50/5 | | | | 100 | | | | |
| | 117 | | Bottom of borehole at 116.5 ft bgs. Groundwater was encountered at 98 feet during drilling. Geophysical Measurements performed by Geovision. | | | | | | | | | | | | |
| | 118 | | | | | | | | | | | | | | |
| | 119 | | | | | | | | | | | | | | |
| | 120 | | | | | | | | | | | | | | |
| | 121 | | | | | | | | | | | | | | |
| | 122 | | | | | | | | | | | | | | |
| | 123 | | | | | | | | | | | | | | |
| | 124 | | | | | | | | | | | | | | |
| | 125 | | | | | | | | | | | | | | |
| | 126 | | | | | | | | | | | | | | |
| | 127 | | | | | | | | | | | | | | |
| | 128 | | | | | | | | | | | | | | |
| | 129 | | | | | | | | | | | | | | |
| | 130 | | | | | | | | | | | | | | |
| | 131 | | | | | | | | | | | | | | |
| | 132 | | | | | | | | | | | | | | |
| | 133 | | | | | | | | | | | | | | |
| | 134 | | | | | | | | | | | | | | |
| | 135 | | | | | | | | | | | | | | |
| | 136 | | | | | | | | | | | | | | |
| | 137 | | | | | | | | | | | | | | |
| | 138 | | | | | | | | | | | | | | |
| | 139 | | | | | | | | | | | | | | |
| | 140 | | | | | | | | | | | | | | |
| | 141 | | | | | | | | | | | | | | |
| | 142 | | | | | | | | | | | | | | |
| | 143 | | | | | | | | | | | | | | |
| | 144 | | | | | | | | | | | | | | |
| | 145 | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-51E

| | | | | |
|---|--|---|--|--------------------------|
| LOGGED BY A. Bakane | BEGIN DATE 4-19-12 | COMPLETION DATE 4-19-12 | BOREHOLE LOCATION (Lat/Long or North/East and Datum) 36° 51' 27" / -119° 56' 49" | HOLE ID S0106A |
| DRILLING CONTRACTOR Technicon Engineering Services, Inc. | BOREHOLE LOCATION (Offset, Station, Line) See Boring Location Plan | | SURFACE ELEVATION | |
| DRILLING METHOD Hollow-Stem Auger | DRILL RIG CME 55 (Rig #10) | | BOREHOLE DIAMETER 8" | |
| SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.5" I.D.) - SPT (1.4" I.D.) | SPT HAMMER TYPE Auto / 140 lbs / 30" | | HAMMER EFFICIENCY, ERI 87% | |
| BOREHOLE BACKFILL AND COMPLETION Neat Cement | GROUNDWATER DURING DRILLING READINGS | AFTER DRILLING (DATE) 100.0 ft on 4-19-12 | TOTAL DEPTH OF BORING 103.0 ft | |

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---|
| 0 | 0 | | Well-graded SAND with SILT (SW-SM); medium dense; brown; moist. | | | | | | | | | | | | Bulk sample taken at 0' to 5' (R=26) |
| 1 | 1 | | | | | | | | | | | | | | |
| 2 | 2 | | | | S01 | 12 | 21 | | | | 78 | | | | %LEL/PPM=0, %O2=20.9, %H2S=0, %CO=0 |
| 3 | 3 | | | | | 11 | | | | | | | | | |
| 4 | 4 | | | | | 10 | | | | | | | | | |
| 5 | 5 | | Medium dense. | | S02 | 3 | 9 | | | | 89 | | | | |
| 6 | 6 | | (+ #4=2%, - #200=11%). | | | 4 | | 4 | | | | | | | PA |
| 7 | 7 | | | | | 5 | | | | | | | | | |
| 8 | 8 | | Dense. | | S03 | 4 | 21 | | | | 89 | | | | |
| 9 | 9 | | | | | 7 | | | | | | | | | |
| 10 | 10 | | Poorly graded SAND with SILT (SP-SM); medium dense; light gray; moist; coarse to medium SAND. | | S04 | 5 | 20 | | | | 89 | | | | |
| 11 | 11 | | | | | 9 | | | | | | | | | |
| 12 | 12 | | | | | 11 | | | | | | | | | |
| 13 | 13 | | | | | | | | | | | | | | |
| 14 | 14 | | | | | | | | | | | | | | |
| 15 | 15 | | | | S05 | 3 | 13 | | | | 78 | | | | |
| 16 | 16 | | (+ #4=2%, - #200=6%). | | | 6 | | 3 | | | | | | | PA |
| 17 | 17 | | | | | 7 | | | | | | | | | |
| 18 | 18 | | | | | | | | | | | | | | |
| 19 | 19 | | | | | | | | | | | | | | |
| 20 | 20 | | | | S06 | 8 | 68 | | | | 89 | | | | |
| 21 | 21 | | Very dense; light yellowish brown; fine SAND. | | | 25 | | 11 | 105 | | | | | | CR |
| 22 | 22 | | | | | 43 | | | | | | | | | |
| 23 | 23 | | SANDY SILT (ML); very stiff; light brownish gray; moist; nonplastic fines. | | | | | | | | | | | | |
| 24 | 24 | | | | | | | | | | | | | | |
| 25 | 25 | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

This log is part of the report prepared by Parikh Consultants, Inc. for the named project and should be read together with that report for complete interpretation. This summary applies only at the location of this boring and at the time of drilling. Subsurface conditions may differ at other locations and may change at this location with the passage of time. The data presented is a simplification of actual conditions encountered.

Plate:

A-53A

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 25 | | | SANDY SILT (ML); very stiff, light brownish gray; moist; nonplastic fines. <i>layer description continued from previous page</i> | X | S07 | 4 8 10 | 18 | 12 | | | 89 | | | | |
| 26 | | | | | | | | | | | | | | | PI |
| 27 | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | | |
| 31 | | | Poorly graded SAND with SILT (SP-SM); dense; light brown; moist. | X | S08 | 11 14 16 | 30 | | | | 89 | | | | |
| 32 | | | | | | | | | | | | | | | |
| 33 | | | | | | | | | | | | | | | |
| 34 | | | | | | | | | | | | | | | |
| 35 | | | | | | | | | | | | | | | |
| 36 | | | (+ #4=0%, - #200=7%). | X | S09 | 4 9 15 | 24 | 3 | | | 100 | | | | PA |
| 37 | | | | | | | | | | | | | | | |
| 38 | | | | | | | | | | | | | | | |
| 39 | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | |
| 41 | | | Yellowish gray; moist; oxide staining. | X | S010 | 12 22 22 | 44 | | | | 78 | | | | C |
| 42 | | | | | | | | | | | | | | | |
| 43 | | | | | | | | | | | | | | | |
| 44 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | |
| 46 | | | Light brownish gray; medium to fine SAND. | X | S011 | 4 10 11 | 21 | | | | 89 | | | | |
| 47 | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | |
| 49 | | | SILTY SAND with GRAVEL (SM); very dense; dark brown; moist; medium to fine SAND. | | | | | | | | | | | | |
| 50 | | | | X | S012 | 50/5" | REF | | | | 120 | | | | |
| 51 | | | | | | | | | | | | | | | |
| 52 | | | | | | | | | | | | | | | |
| 53 | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | |
| 55 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-53B

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|--|--------------|---------------|------------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 56 | | | SILTY SAND with GRAVEL (SM); very dense; dark brown; moist; medium to fine SAND. <i>layer description continued from previous page</i> | X | S013 | 10 14 17 | 31 | | | | 78 | | | | |
| 57 | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | |
| 59 | | | | | | | | | | | | | | | |
| 60 | | | SILT (ML); hard; light reddish brown; moist; trace SAND. | X | S014 | 34 50/2" | 50/2 | | | | 100 | | | | |
| 61 | | | | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | |
| 64 | | | Oxide staining. | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | |
| 68 | | | Light brownish gray. | X | S015 | 5 22 27 | 49 | | | | 78 | | | | |
| 69 | | | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | |
| 71 | | | | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | |
| 73 | | | | | | | | | | | | | | | |
| 74 | | | | | | | | | | | | | | | |
| 75 | | | | | | | | | | | | | | | |
| 76 | | | | | | | | | | | | | | | |
| 77 | | | | | | | | | | | | | | | |
| 78 | | | | | | | | | | | | | | | |
| 79 | | | | | | | | | | | | | | | |
| 80 | | | | X | S016 | 9 30 50/5" | 80/11" | | | | 94 | | | | |
| 81 | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | |
| 84 | | | SILTY SAND (SM); dense; light brown; moist; fine SAND. | | | | | | | | | | | | |
| 85 | | | | | | | | | | | | | | | |

(continued)



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-53C

| ELEVATION (ft) | DEPTH (ft) | Material Graphics | DESCRIPTION | Sample Depth | Sample Number | Blows per 6 in. | Blows per foot | Moisture Content (%) | Dry Unit Weight (pcf) | Shear Strength (tsf) | Recovery (%) | RQD (%) | Drilling Method | Casing Depth | Remarks |
|----------------|------------|-------------------|---|--------------|---------------|-----------------|----------------|----------------------|-----------------------|----------------------|--------------|---------|-----------------|--------------|---------|
| 86 | | | SILTY SAND (SM); dense; light brown; moist; fine SAND. <i>layer description continued from previous page</i> | | | | | | | | | | | | |
| 87 | | | | | | | | | | | | | | | |
| 88 | | | | | | | | | | | | | | | |
| 89 | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | |
| 91 | | | | X | S017 | 22 14 17 | 31 | | | | 78 | | | | |
| 92 | | | | | | | | | | | | | | | |
| 93 | | | | | | | | | | | | | | | |
| 94 | | | | | | | | | | | | | | | |
| 95 | | | | | | | | | | | | | | | |
| 96 | | | | | | | | | | | | | | | |
| 97 | | | | | | | | | | | | | | | |
| 98 | | | | | | | | | | | | | | | |
| 99 | | | | | | | | | | | | | | | |
| 100 | | | Loose to medium dense; wet. | X | S018 | 2 2 8 | 10 | | | | 89 | | | | |
| 101 | | | | | | | | | | | | | | | DS |
| 102 | | | Very dense; coarse to fine SAND; (+#4=0%, -#200=14%). | X | S019 | 5 13 21 | 34 | 32 | | | 89 | | | | PA |
| 103 | | | Bottom of borehole at 103.0 ft bgs. Groundwater was measured at 45 feet after drilling on 4/19/12. Piezometer installed. | X | | | | | | | | | | | |
| 104 | | | | | | | | | | | | | | | |
| 105 | | | | | | | | | | | | | | | |
| 106 | | | | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | | | | |
| 108 | | | | | | | | | | | | | | | |
| 109 | | | | | | | | | | | | | | | |
| 110 | | | | | | | | | | | | | | | |
| 111 | | | | | | | | | | | | | | | |
| 112 | | | | | | | | | | | | | | | |
| 113 | | | | | | | | | | | | | | | |
| 114 | | | | | | | | | | | | | | | |
| 115 | | | | | | | | | | | | | | | |



**CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA**

Date: 6/29/2012

Job No.: 2009-138-450

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Plate:

A-53D

APPENDIX B

(LABORATORY TEST DATA)

APPENDIX B

LABORATORY TESTS

Classification Tests

The field classifications of the samples were verified through visual examination in the laboratory and laboratory testing according to the Unified Soil Classification System. The results are presented on “Log of Test Borings”, Appendix A.

Moisture-Density

The natural moisture contents and dry unit weights were determined for selected undisturbed samples of the soils in general accordance with ASTM Test Method D 2216-92. This information was used to classify and correlate the soils. The results are presented at the appropriate depths on the “Log of Test Borings”, Appendix A.

Atterberg Limits

The Atterberg Limits were determined for selected samples that had been sieved through No. 40 sieve. These results were used to classify the soils, as well as to obtain an indication of the effective strength characteristics and expansion potential with variations in moisture content. The Atterberg Limits were determined in general accordance with ASTM Test Method D 4318-93. The results of these tests are presented on Plate No: B-2A through B-2D, “Plasticity Chart”.

Grain Size Classification

Grain size classification tests (ASTM Test Method D422-63) were performed on selected samples of granular soil to aid in the classification. The results are presented on Plate No: B-3A through Plate No: B-3J, “Grain Size Distribution Curves”.

Consolidation Tests

Consolidation tests (California Test Method T219) were performed on selected undisturbed samples. The test results are presented on Plate No: B-4A thru Plate No: B-4O, “Consolidation Test Results”.

Corrosion Test

Corrosion tests were performed on selected samples to determine the corrosion potential of the soils. The pH and minimum resistivity tests were performed according to California Test Method 643. The tests were performed by Sunland Analytical. The test results are presented on Plate No: B-5-1 through Plate No: B-5-37.

Direct Shear Tests

Direct Shear tests were performed on selected relatively undisturbed samples to determine the shear strength of a soil material in direct shear. The tests were performed according to ASTM Test Method D 3080. The test results are presented on Plate No: B-6A through Plate No: B-6Z1.



PARIKH CONSULTANTS, INC.
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MATERIALS TESTING

California High Speed Train Merced to Fresno Corridor CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO.: 2009-138-450

PLATE NO.: B-1A

APPENDIX B
LABORATORY TESTS
(Continued)

Unconfined Compression Tests

Strength tests were performed on selected undisturbed samples using unconfined compression machine. Unconfined compression tests were performed in general accordance with ASTM Test Method D 2166-91. The results are presented on Plate No: B-7A through Plate No: B-7R.

R-value Tests

R-value tests were performed on selected bulk samples. The tests were performed according to California Test Method 301. The test results are presented on Plate No: B-8A through Plate No: B-8c.

Collapse Potential of Soil Tests

Collapse Potential of Soil Tests were performed on selected samples. Collapse Potential Soil Tests were performed in general accordance with ASTM Test Method D 5333. The test results are presented on Plate No: B-10A through Plate No: B-10D.



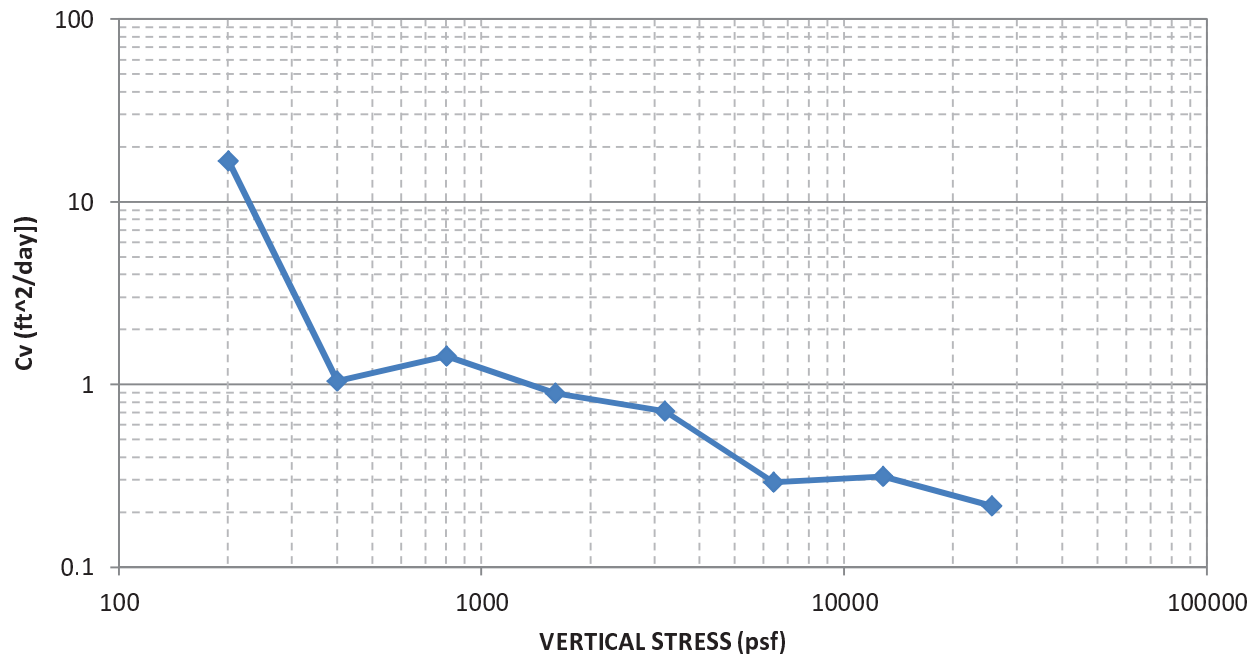
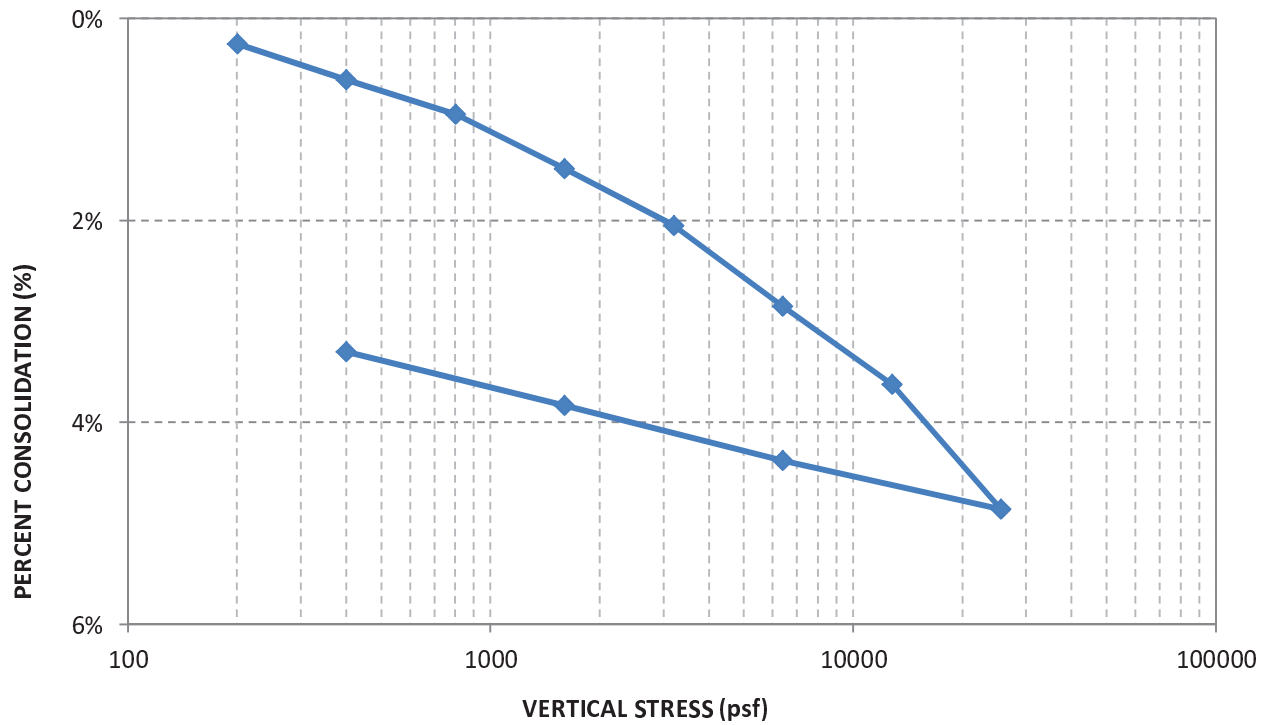
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GEOTECHNICAL CONSULTANTS
MATERIALS TESTING

California High Speed Train Merced to Fresno Corridor CP-1
FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO.: 2009-138-450

PLATE NO.: B-1B

CONSOLIDATION TEST RESULT



| | Moisture Content (%) | Bulk Density (psf) | Dry Density (psf) |
|---------|----------------------|--------------------|-------------------|
| Initial | 23.0 | 121.94 | 99.13 |
| Final | 26.0 | 129.18 | 102.52 |

Boring No. S0046A
 Sample No. 2
 Depth (ft) 6
 Soil Description: SILT (ML), gray

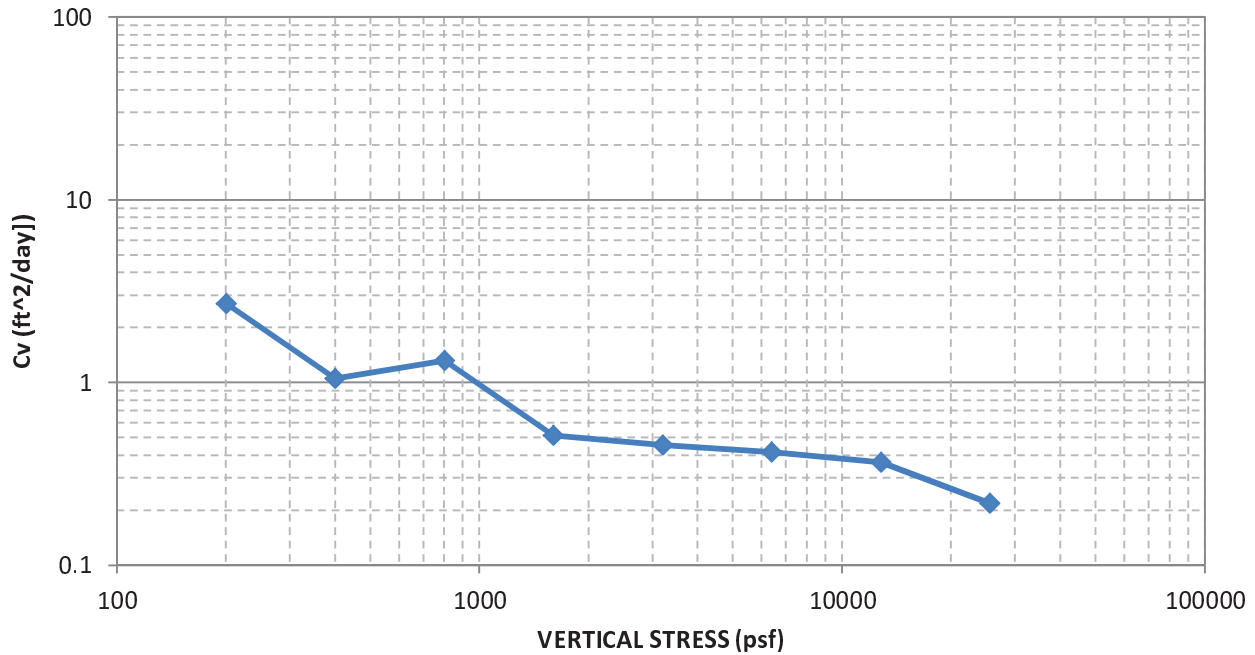
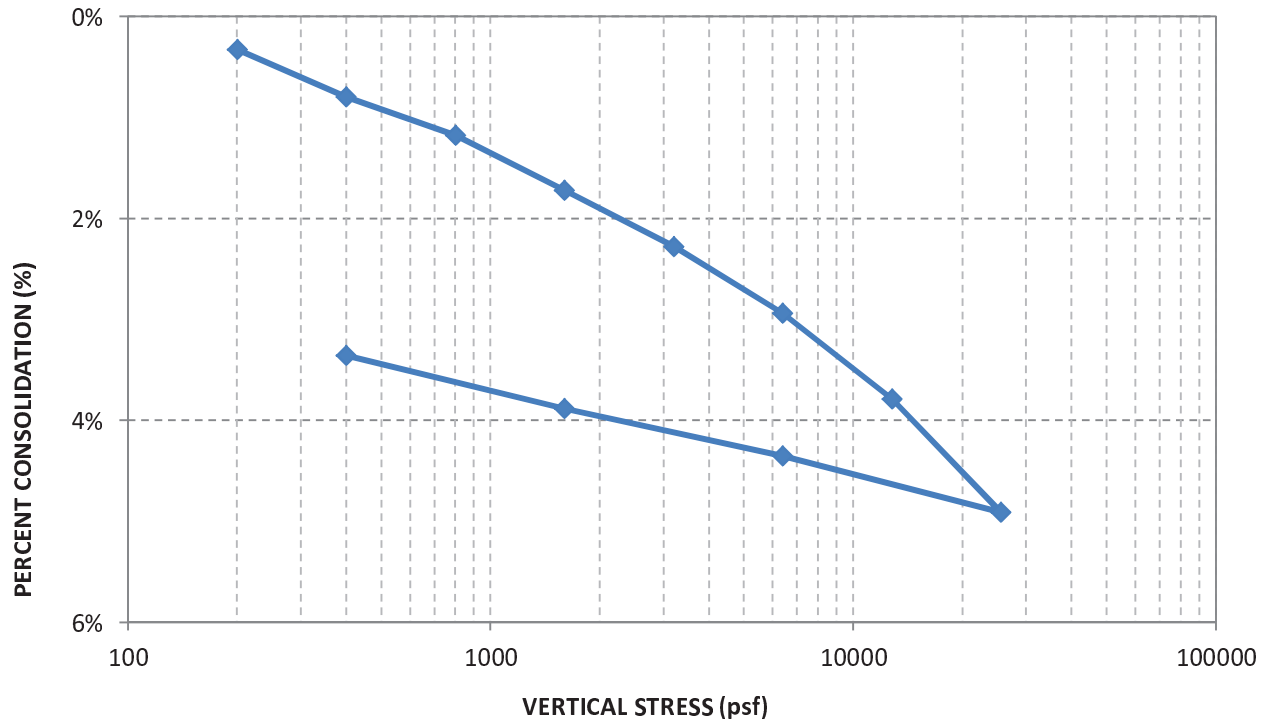


CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1

JOB NO.: 2009-138-450

PLATE NO.: B-4L

CONSOLIDATION TEST RESULT



| | Moisture Content (%) | Bulk Density (psf) | Dry Density (psf) |
|---------|----------------------|--------------------|-------------------|
| Initial | 10.7 | 107.99 | 97.59 |
| Final | 21.5 | 122.71 | 100.98 |

Boring No. S0056A
 Sample No. 7
 Depth (ft) 36
 Soil Description: SILTY SAND (SM), light brown

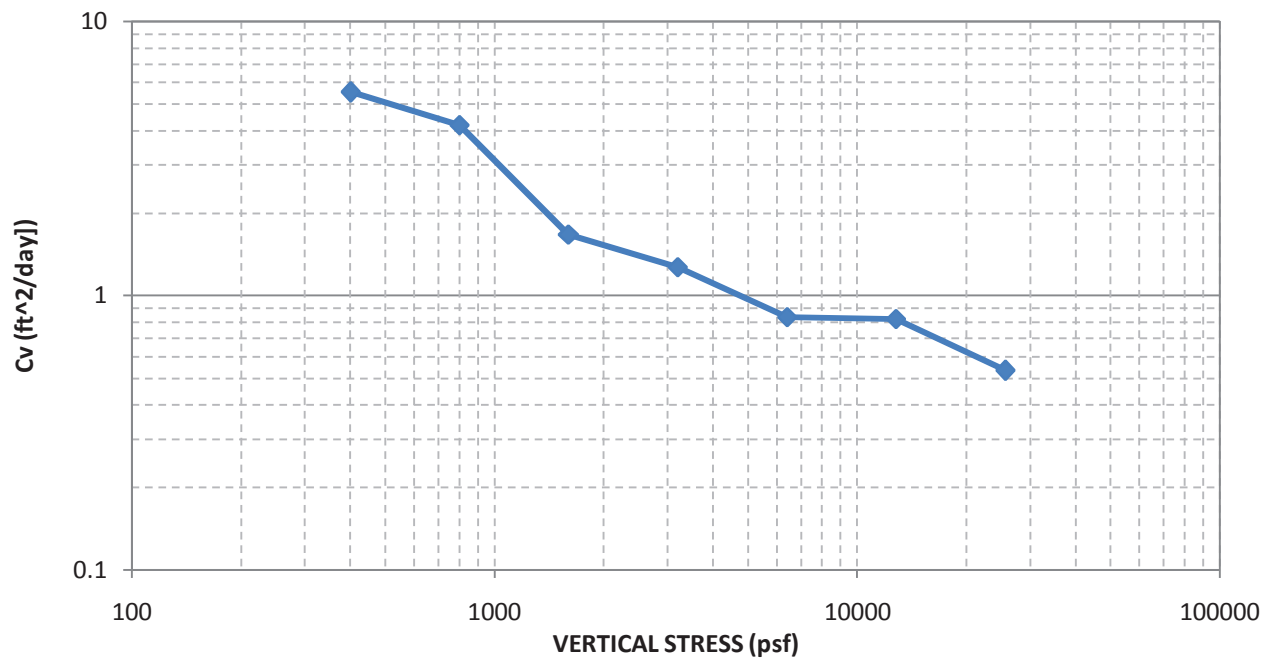
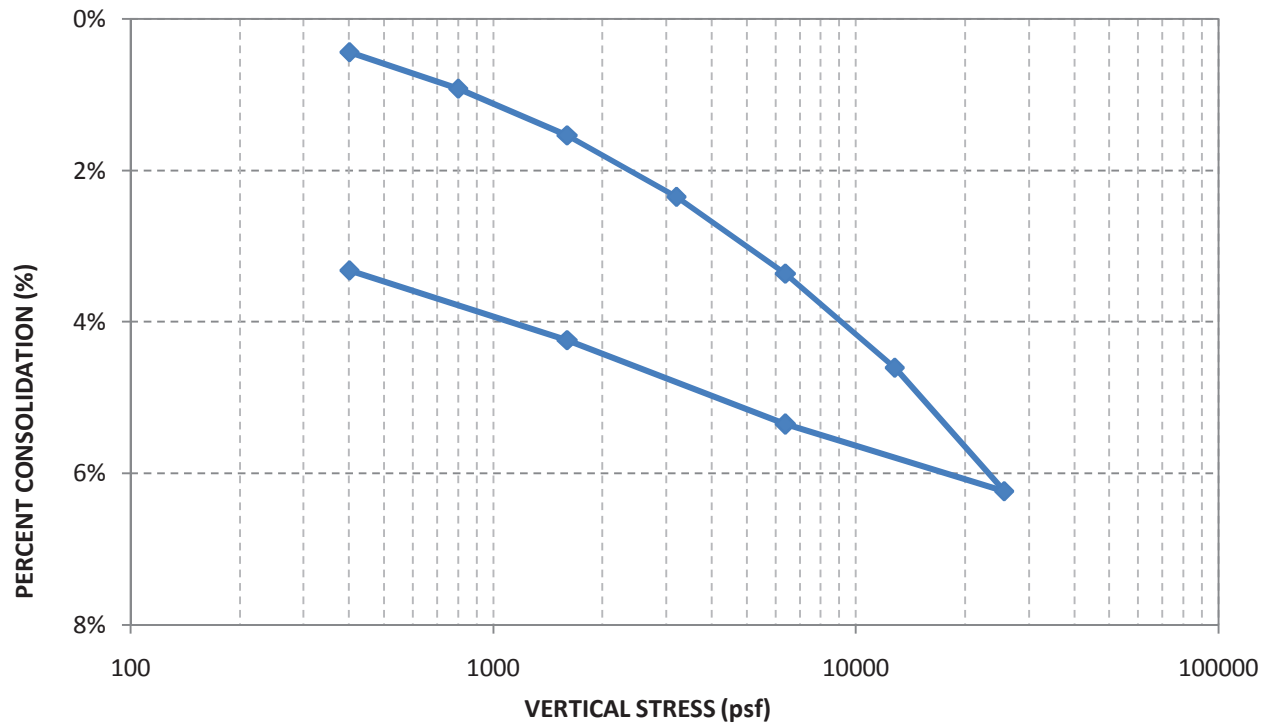


CALIFORNIA HIGH SPEED TRAIN MERCED TO FRESNO CORRIDOR CP-1

JOB NO.: 2009-138-450

PLATE NO.: B-4M

CONSOLIDATION TEST RESULT



| | Moisture Content (%) | Bulk Density (psf) | Dry Density (psf) |
|---------|----------------------|--------------------|-------------------|
| Initial | 26.6 | 124.46 | 98.34 |
| Final | 26.8 | 129.01 | 101.72 |

Boring No. S0028A
 Sample No. 4
 Depth (ft) 16'
 Soil Description: SILT (ML), yellowish gray

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



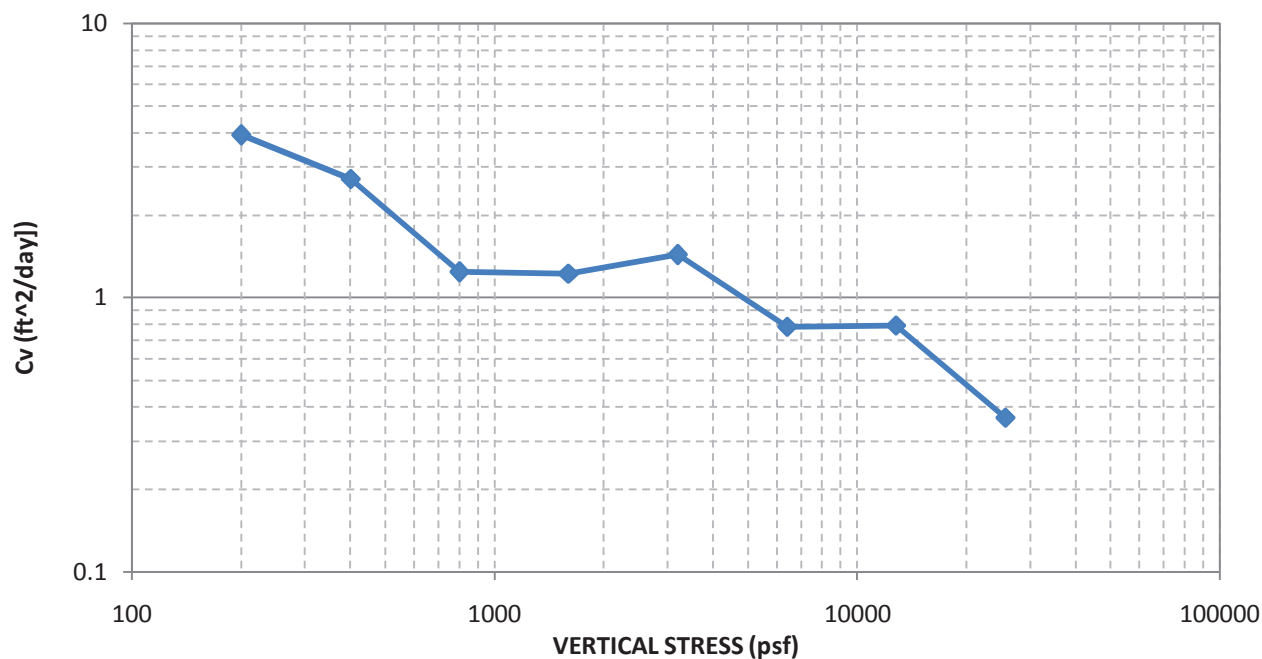
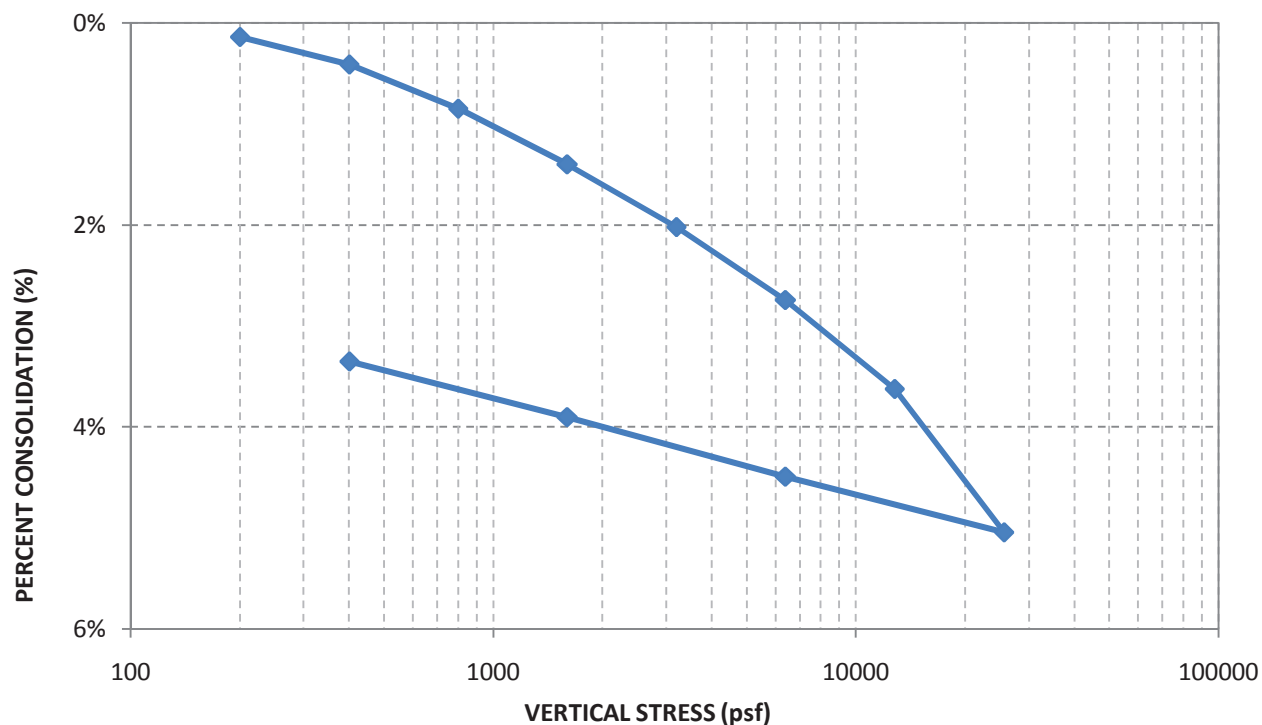
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CALIFORNIA HIGH SPEED TRAIN MERCED TO
FRESNO CORRIDOR CP-1

JOB NO.: 2009-138-450

PLATE NO.: B-4N

CONSOLIDATION TEST RESULT



| | Moisture Content (%) | Bulk Density (psf) | Dry Density (psf) |
|---------|----------------------|--------------------|-------------------|
| Initial | 27.2 | 112.29 | 88.28 |
| Final | 29.8 | 118.52 | 91.34 |

Boring No. S0040A
 Sample No. 10
 Depth (ft) 46'
 Soil Description: SANDY SILT (ML), yellowish brown

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH
 Practicing in the Geosciences

CALIFORNIA HIGH SPEED TRAIN MERCED TO
 FRESNO CORRIDOR CP-1

JOB NO.: 2009-138-450

PLATE NO.: B-40



Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/01/2012
Date Submitted 05/25/2012

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2009-138-450/CA HST Site ID : S0020R#4 @ 16'.
Thank you for your business.

* For future reference to this analysis please use SUN # 62354-128364.

EVALUATION FOR SOIL CORROSION

| | | | |
|---------------------|----------|----------------|---|
| Soil pH | 7.74 | | |
| Minimum Resistivity | 5.36 | ohm-cm (x1000) | |
| Chloride | 21.8 ppm | 00.00218 | % |
| Sulfate | 29.5 ppm | 00.00295 | % |

METHODS

pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422



PLATE NO.: B-5-33

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/06/2012
Date Submitted 05/30/2012

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2009-138-450/CA HST Site ID : S0022R9#1 @ 11'.
Thank you for your business.

* For future reference to this analysis please use SUN # 62380-128436.

EVALUATION FOR SOIL CORROSION

| | | | |
|---------------------|----------|----------------|---|
| Soil pH | 7.38 | | |
| Minimum Resistivity | 4.82 | ohm-cm (x1000) | |
| Chloride | 4.0 ppm | 00.00040 | % |
| Sulfate | 12.8 ppm | 00.00128 | % |

METHODS

pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/01/2012
Date Submitted 05/25/2012

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2009-138-450/CA HST Site ID : S0026RA#2 @ 6'.
Thank you for your business.

* For future reference to this analysis please use SUN # 62354-128367.

EVALUATION FOR SOIL CORROSION

| | | | |
|---------------------|---------------------|----------|---|
| Soil pH | 8.46 | | |
| Minimum Resistivity | 3.22 ohm-cm (x1000) | | |
| Chloride | 20.1 ppm | 00.00201 | % |
| Sulfate | 53.8 ppm | 00.00538 | % |

METHODS

pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

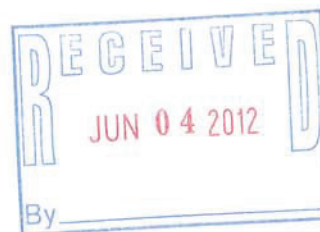


PLATE NO.: B-5-35

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/01/2012
Date Submitted 05/25/2012

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2009-138-450/CA HST Site ID : S0066R#1 @ 3'.
Thank you for your business.

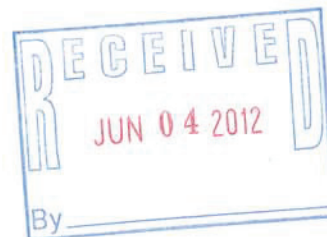
* For future reference to this analysis please use SUN # 62354-128365.

EVALUATION FOR SOIL CORROSION

| | | | |
|---------------------|----------|----------------|---|
| Soil pH | 6.89 | | |
| Minimum Resistivity | 2.09 | ohm-cm (x1000) | |
| Chloride | 26.9 ppm | 00.00269 | % |
| Sulfate | 9.1 ppm | 00.00091 | % |

METHODS

pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422



08/22/2012 ADDENDUM 4 - RFP HSR 11-16



Sunland Analytical

11353 Pyrites Way, Suite 4
Rancho Cordova, CA 95670
(916) 852-8557

Date Reported 06/01/2012

Date Submitted 05/25/2012

To: Prav Dayah
Parikh Consultants, Inc.
2360 Qume Dr, Ste.A
San Jose, CA 95131

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following location:
Location : 2009-138-450/CA HST Site ID : S0074R#1 @ 3'.
Thank you for your business.

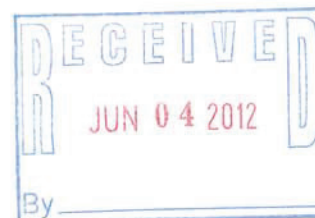
* For future reference to this analysis please use SUN # 62354-128366.

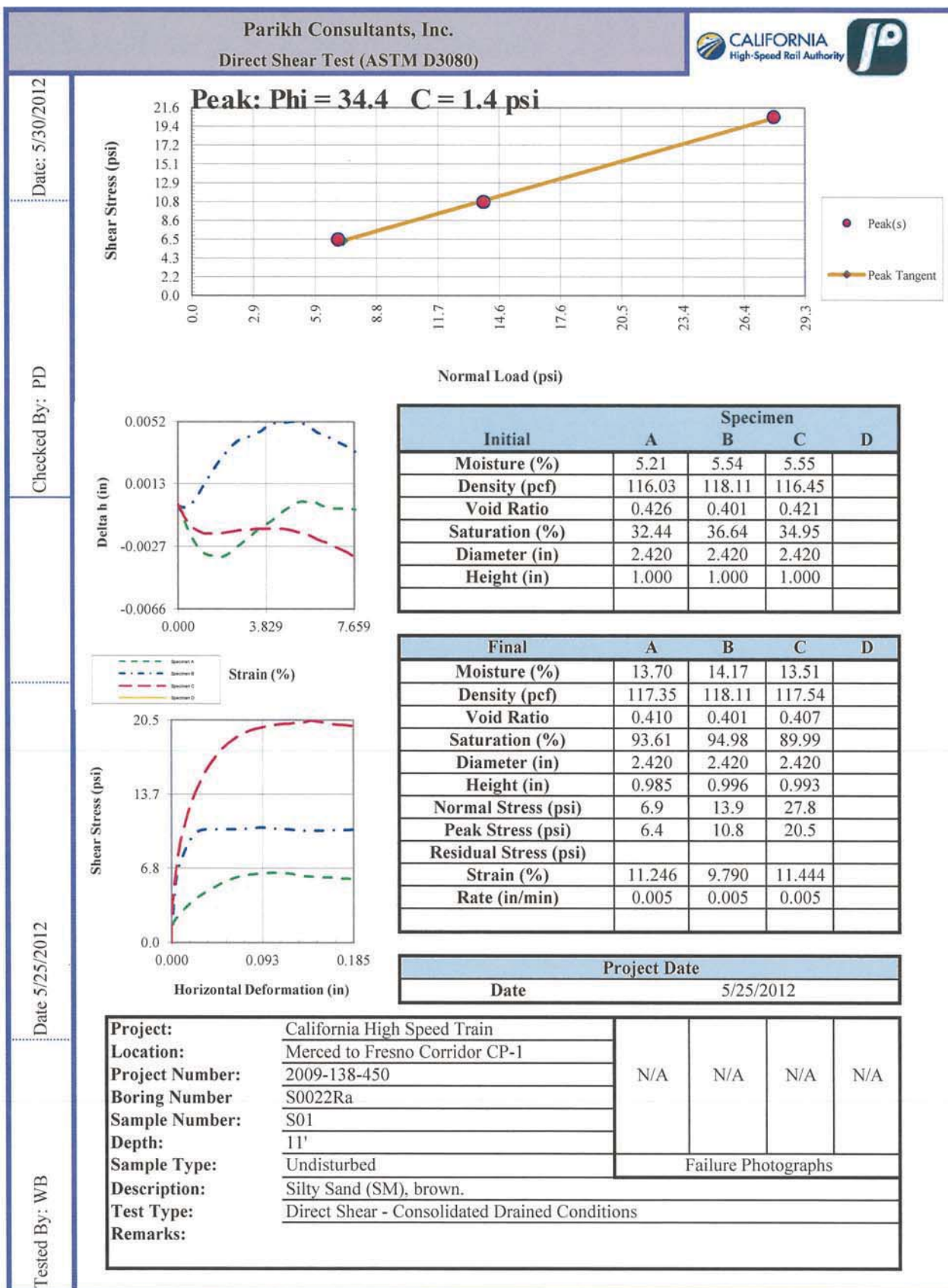
EVALUATION FOR SOIL CORROSION

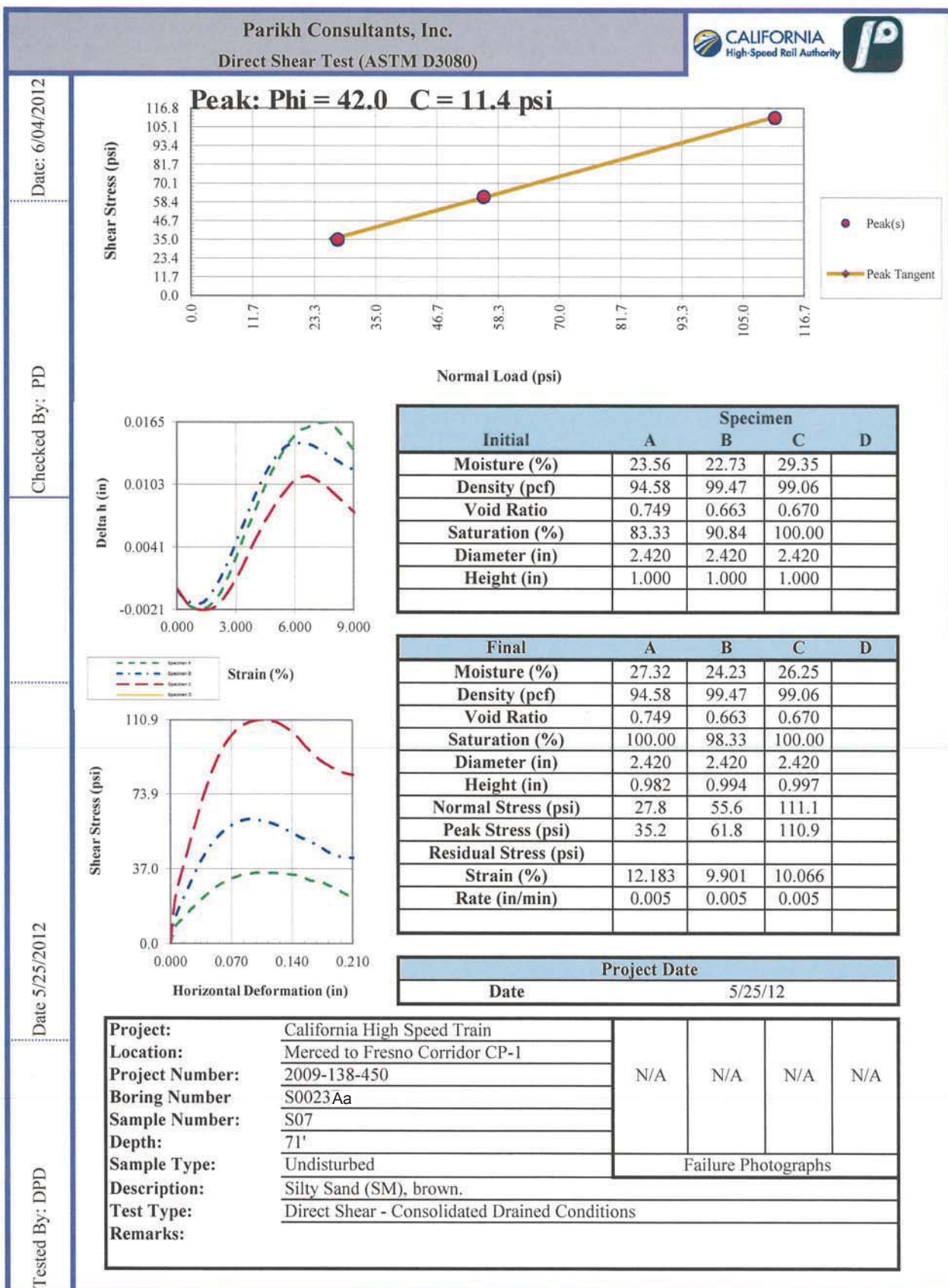
| | | | |
|---------------------|------|----------------|------------|
| Soil pH | 6.74 | | |
| Minimum Resistivity | 4.82 | ohm-cm (x1000) | |
| Chloride | 11.4 | ppm | 00.00114 % |
| Sulfate | 14.8 | ppm | 00.00148 % |

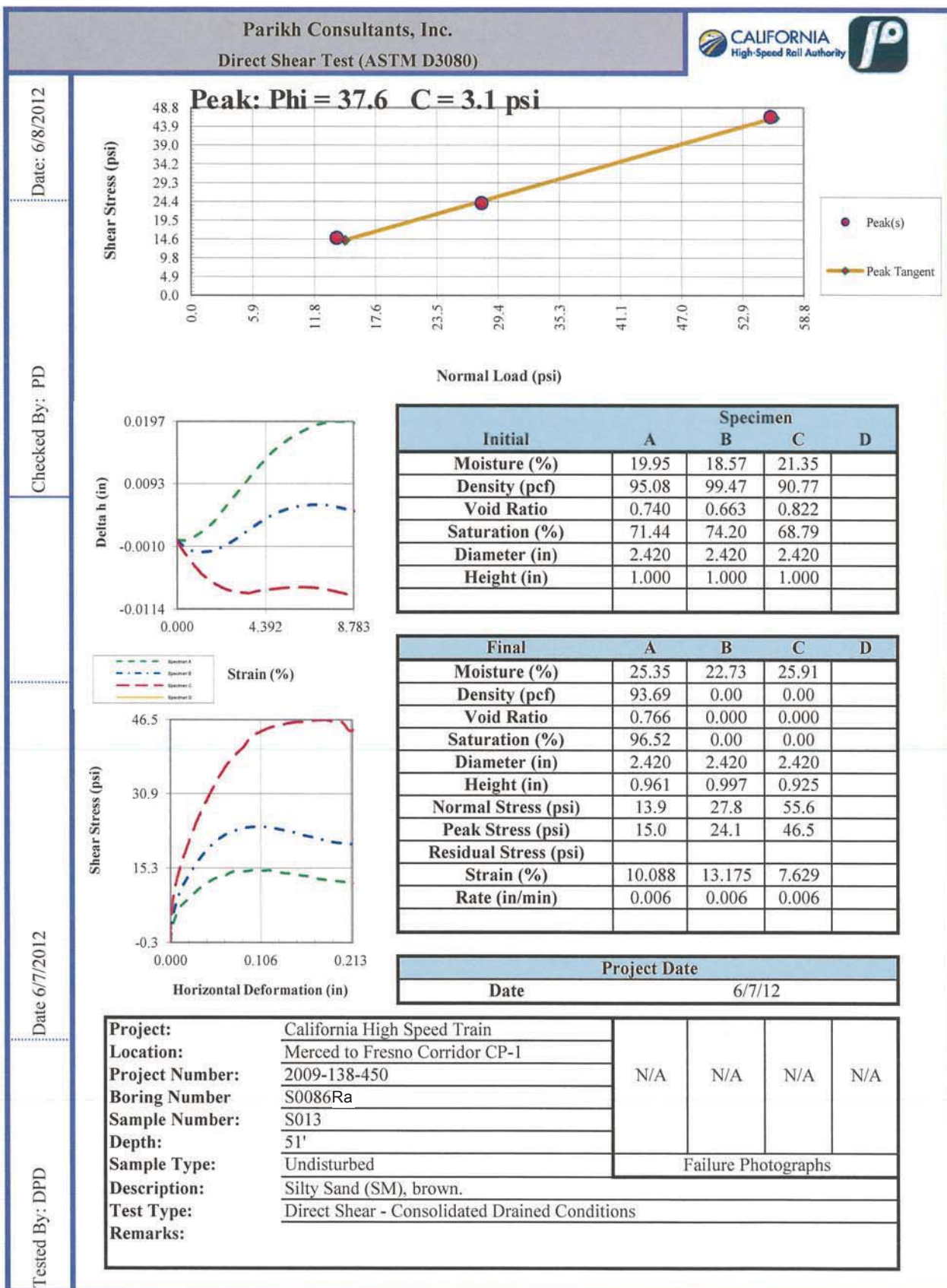
METHODS

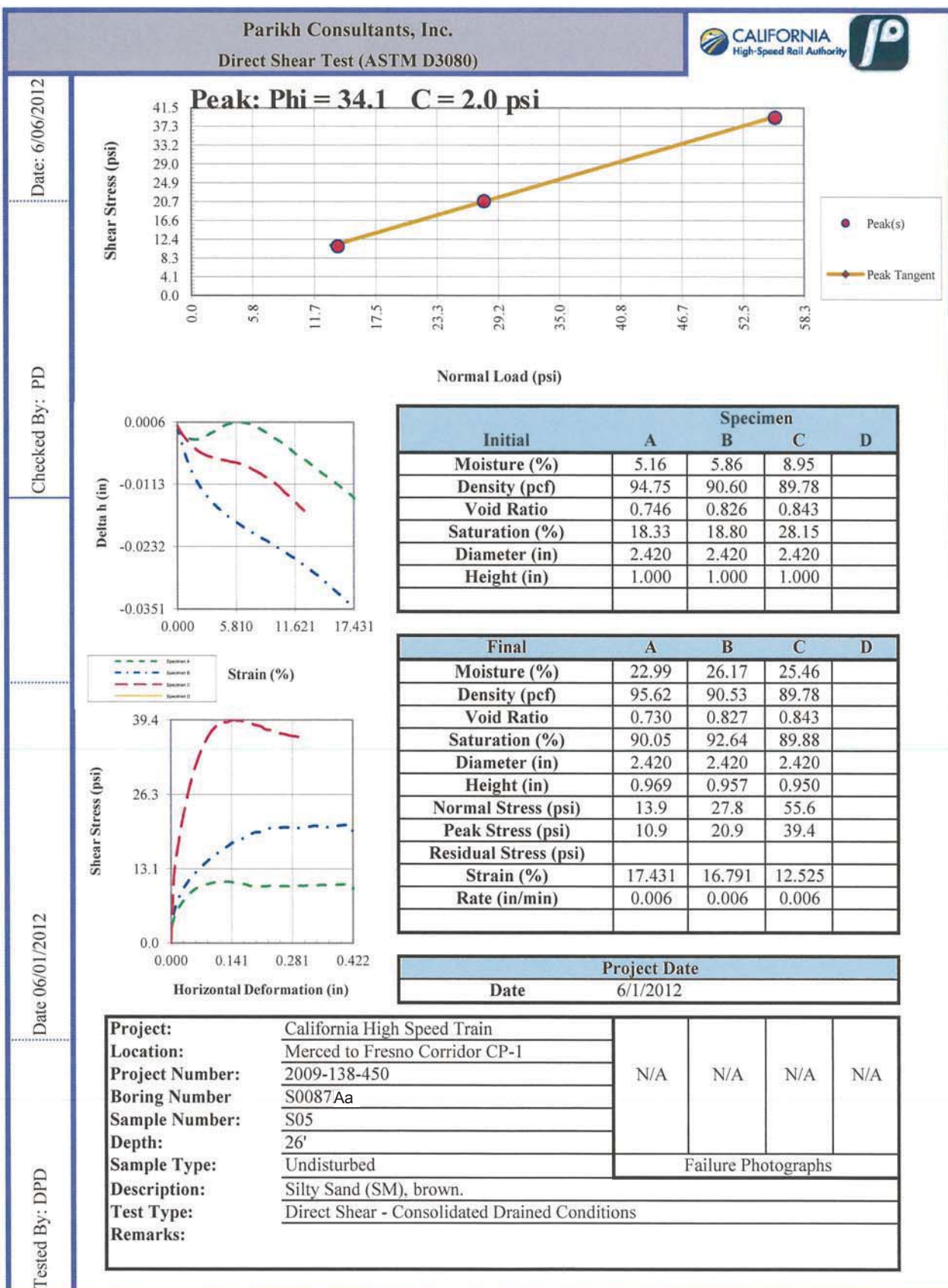
pH and Min.Resistivity CA DOT Test #643
Sulfate CA DOT Test #417, Chloride CA DOT Test #422

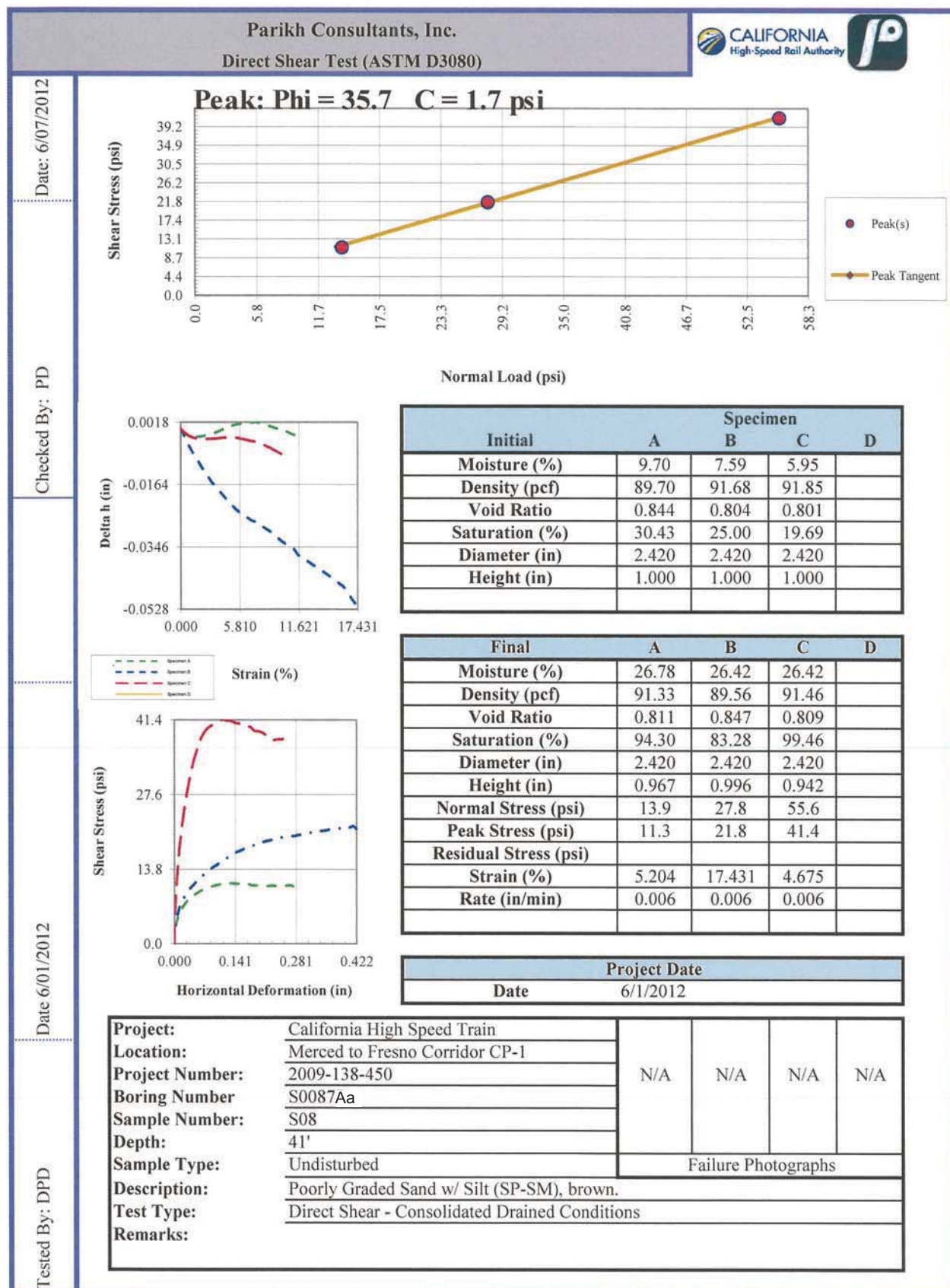


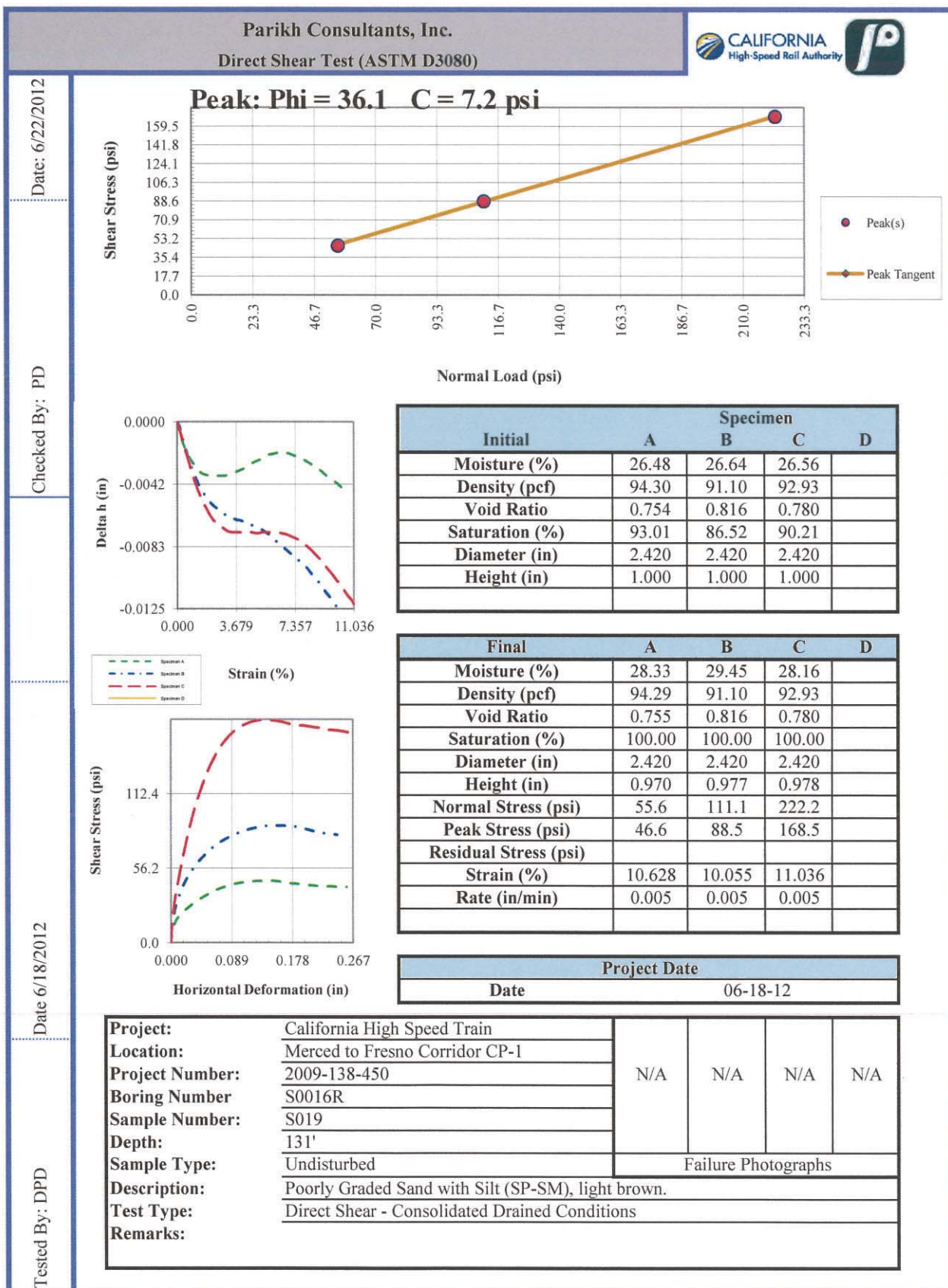


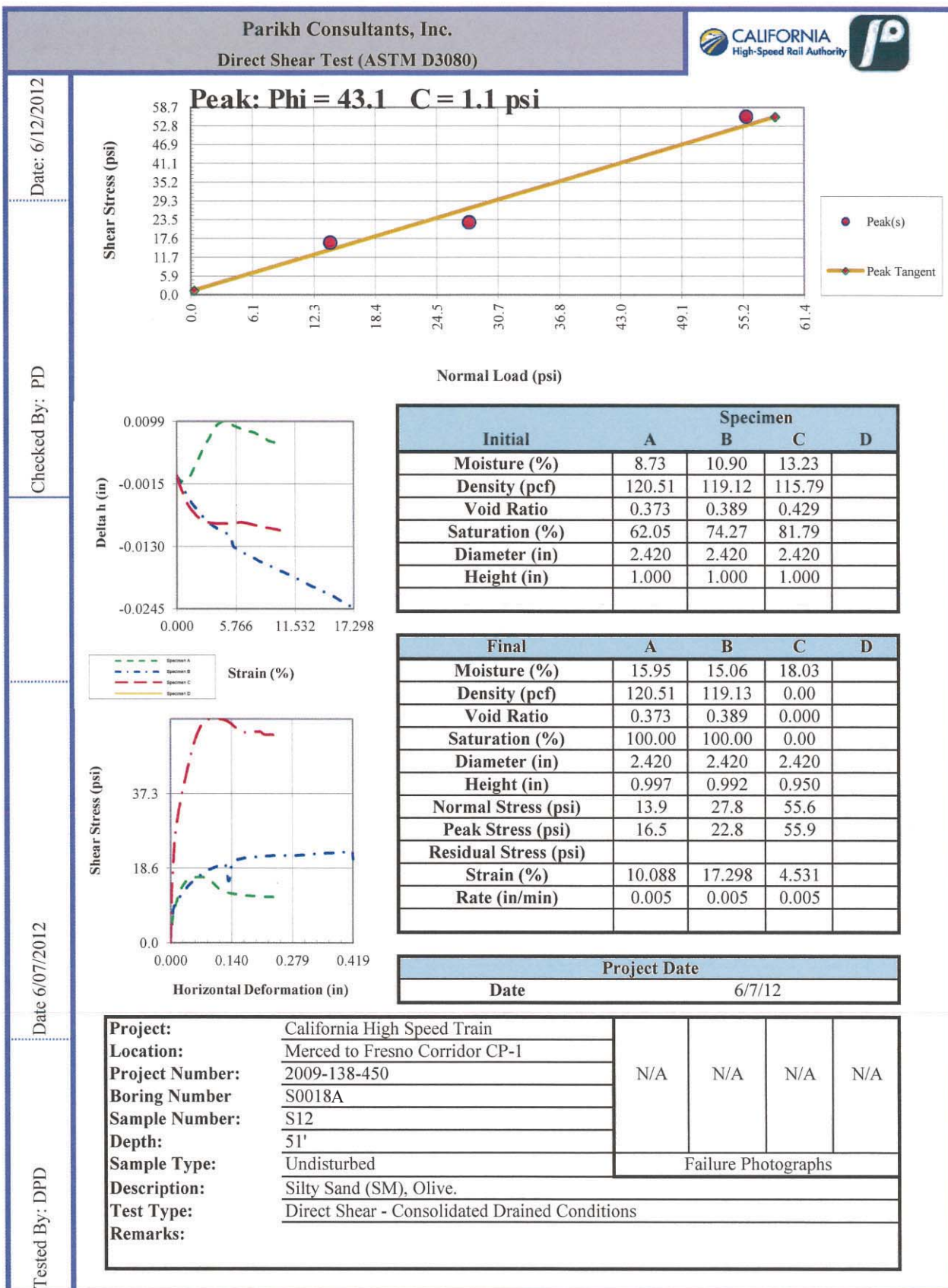


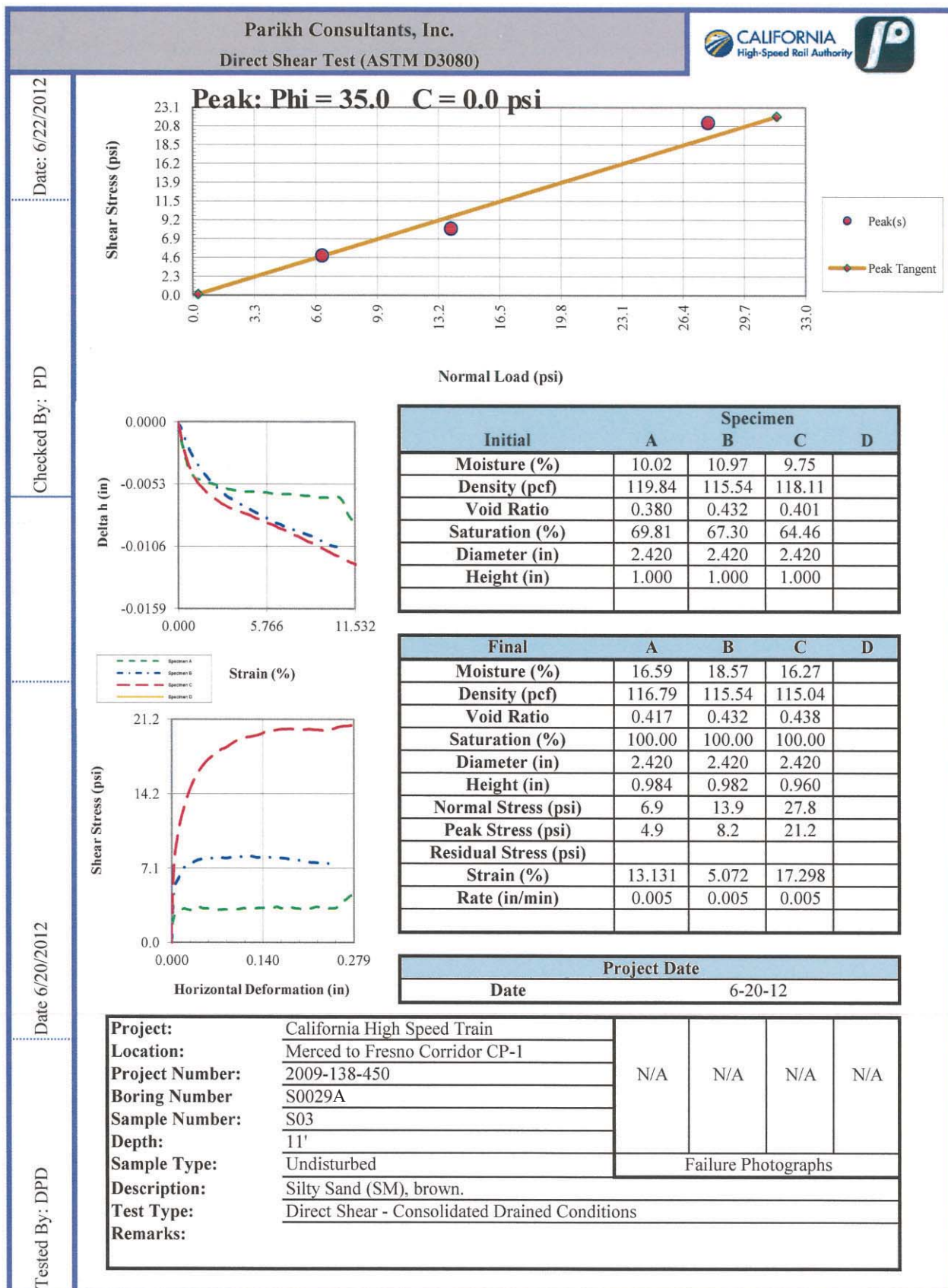


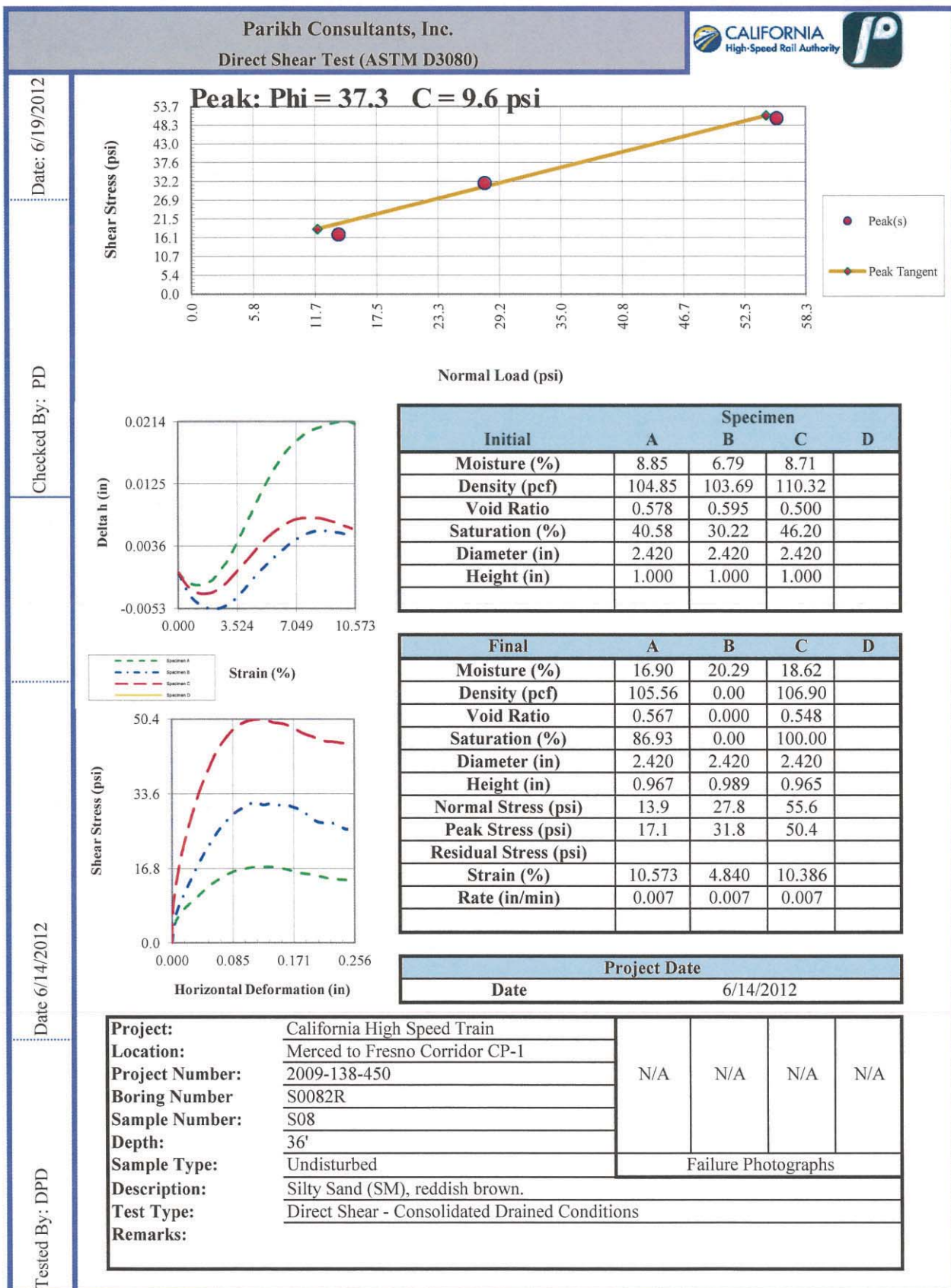


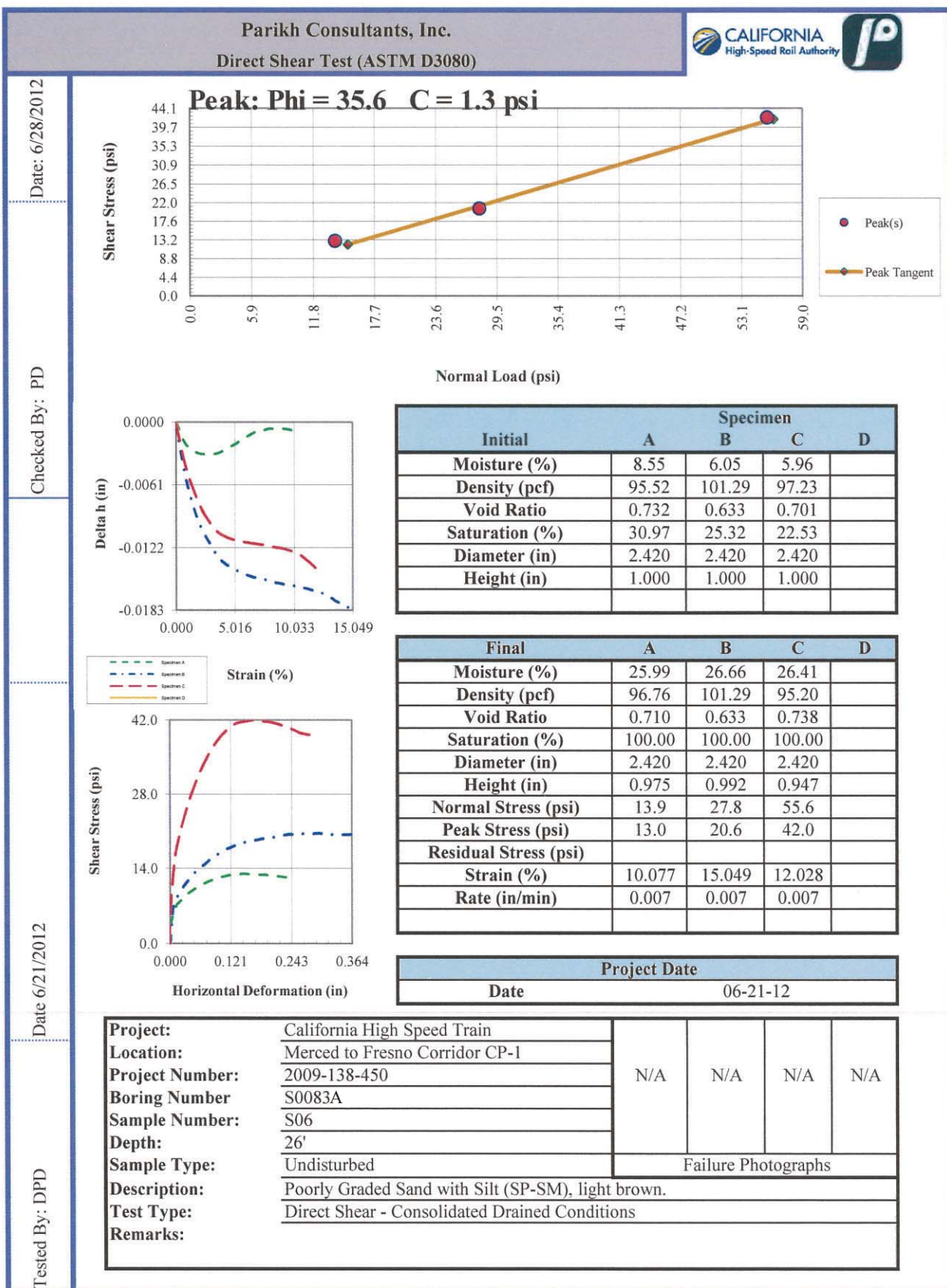




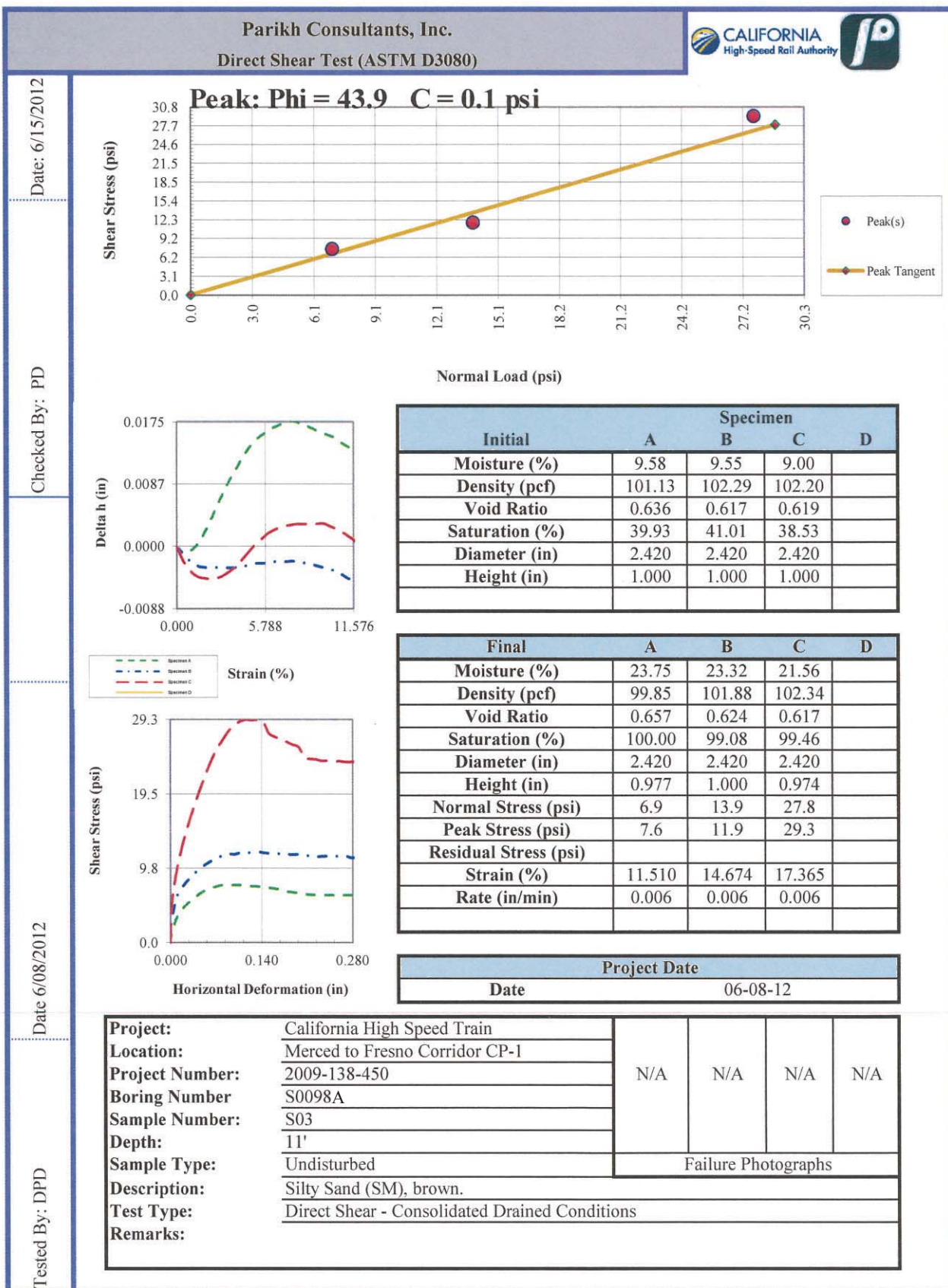


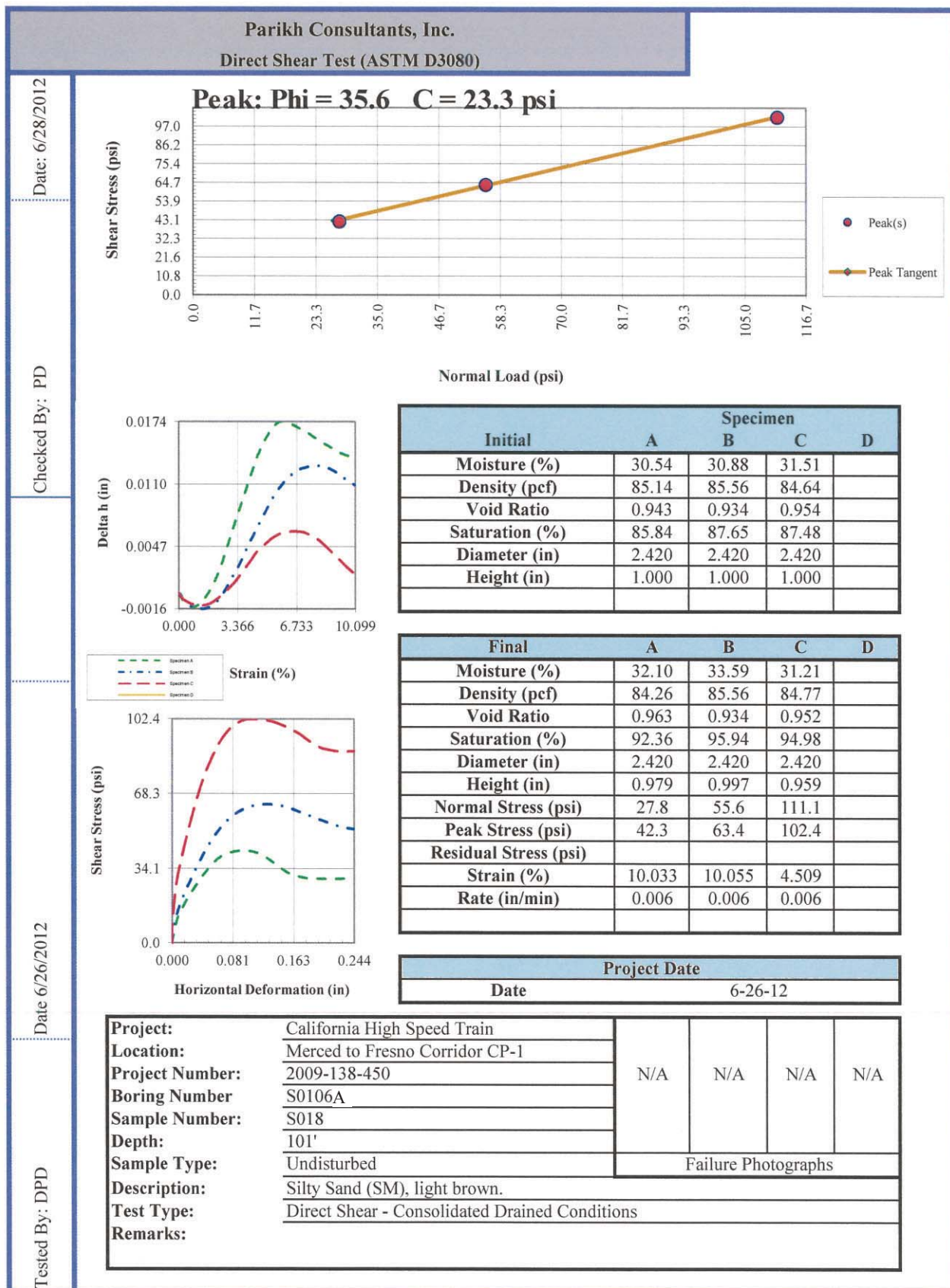






| Parikh Consultants, Inc. | | Direct Shear Test (ASTM D3080) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|--|-----|---|--------------|-----|-----|-----|---------------------|--------------|---------|-------|------|---------------|---------------|-------|-------|-------|------------|------------|-------|-------|-------|----------------|----------------|--------|-------|-------|---------------|---------------|-------|-------|-------|-------------|-------------|-------|-------|-------|---------------------|-----|------|------|--|-------------------|-----|------|------|--|-----------------------|--|--|--|--|------------|-------|--------|--------|--|---------------|-------|-------|-------|--|
| Date: 6/28/2012 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Checked By: PD | | | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="background-color: #d3d3d3;">Initial</th> <th style="background-color: #d3d3d3;">A</th> <th style="background-color: #d3d3d3;">B</th> <th style="background-color: #d3d3d3;">C</th> <th style="background-color: #d3d3d3;">D</th> </tr> </thead> <tbody> <tr> <td>Moisture (%)</td> <td>4.14</td> <td>5.25</td> <td>3.88</td> <td></td> </tr> <tr> <td>Density (pcf)</td> <td>91.93</td> <td>89.86</td> <td>89.61</td> <td></td> </tr> <tr> <td>Void Ratio</td> <td>0.800</td> <td>0.841</td> <td>0.846</td> <td></td> </tr> <tr> <td>Saturation (%)</td> <td>13.74</td> <td>16.55</td> <td>12.16</td> <td></td> </tr> <tr> <td>Diameter (in)</td> <td>2.420</td> <td>2.420</td> <td>2.420</td> <td></td> </tr> <tr> <td>Height (in)</td> <td>1.000</td> <td>1.000</td> <td>1.000</td> <td></td> </tr> </tbody> </table> | | | Initial | A | B | C | D | Moisture (%) | 4.14 | 5.25 | 3.88 | | Density (pcf) | 91.93 | 89.86 | 89.61 | | Void Ratio | 0.800 | 0.841 | 0.846 | | Saturation (%) | 13.74 | 16.55 | 12.16 | | Diameter (in) | 2.420 | 2.420 | 2.420 | | Height (in) | 1.000 | 1.000 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Initial | A | B | C | D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moisture (%) | 4.14 | 5.25 | 3.88 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Density (pcf) | 91.93 | 89.86 | 89.61 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Void Ratio | 0.800 | 0.841 | 0.846 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saturation (%) | 13.74 | 16.55 | 12.16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diameter (in) | 2.420 | 2.420 | 2.420 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Height (in) | 1.000 | 1.000 | 1.000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="background-color: #d3d3d3;">Final</th> <th style="background-color: #d3d3d3;">A</th> <th style="background-color: #d3d3d3;">B</th> <th style="background-color: #d3d3d3;">C</th> <th style="background-color: #d3d3d3;">D</th> </tr> </thead> <tbody> <tr> <td>Moisture (%)</td> <td>26.94</td> <td>29.12</td> <td>27.26</td> <td></td> </tr> <tr> <td>Density (pcf)</td> <td>92.39</td> <td>89.86</td> <td>90.13</td> <td></td> </tr> <tr> <td>Void Ratio</td> <td>0.791</td> <td>0.841</td> <td>0.835</td> <td></td> </tr> <tr> <td>Saturation (%)</td> <td>97.49</td> <td>100.00</td> <td>98.57</td> <td></td> </tr> <tr> <td>Diameter (in)</td> <td>2.420</td> <td>2.420</td> <td>2.420</td> <td></td> </tr> <tr> <td>Height (in)</td> <td>0.967</td> <td>0.954</td> <td>0.944</td> <td></td> </tr> <tr> <td>Normal Stress (psi)</td> <td>6.9</td> <td>13.9</td> <td>27.8</td> <td></td> </tr> <tr> <td>Peak Stress (psi)</td> <td>8.2</td> <td>13.5</td> <td>50.0</td> <td></td> </tr> <tr> <td>Residual Stress (psi)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Strain (%)</td> <td>4.851</td> <td>10.661</td> <td>14.068</td> <td></td> </tr> <tr> <td>Rate (in/min)</td> <td>0.006</td> <td>0.006</td> <td>0.006</td> <td></td> </tr> </tbody> </table> | | | Final | A | B | C | D | Moisture (%) | 26.94 | 29.12 | 27.26 | | Density (pcf) | 92.39 | 89.86 | 90.13 | | Void Ratio | 0.791 | 0.841 | 0.835 | | Saturation (%) | 97.49 | 100.00 | 98.57 | | Diameter (in) | 2.420 | 2.420 | 2.420 | | Height (in) | 0.967 | 0.954 | 0.944 | | Normal Stress (psi) | 6.9 | 13.9 | 27.8 | | Peak Stress (psi) | 8.2 | 13.5 | 50.0 | | Residual Stress (psi) | | | | | Strain (%) | 4.851 | 10.661 | 14.068 | | Rate (in/min) | 0.006 | 0.006 | 0.006 | |
| Final | A | B | C | D | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Moisture (%) | 26.94 | 29.12 | 27.26 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Density (pcf) | 92.39 | 89.86 | 90.13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Void Ratio | 0.791 | 0.841 | 0.835 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Saturation (%) | 97.49 | 100.00 | 98.57 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Diameter (in) | 2.420 | 2.420 | 2.420 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Height (in) | 0.967 | 0.954 | 0.944 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Normal Stress (psi) | 6.9 | 13.9 | 27.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak Stress (psi) | 8.2 | 13.5 | 50.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Residual Stress (psi) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Strain (%) | 4.851 | 10.661 | 14.068 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rate (in/min) | 0.006 | 0.006 | 0.006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date: 6/22/2012 | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5" style="background-color: #d3d3d3;">Project Date</th> </tr> </thead> <tbody> <tr> <td style="width: 50%;">Date</td> <td colspan="4">6-22-12</td> </tr> </tbody> </table> | | | | | Project Date | | | | | Date | 6-22-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Project Date | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date | 6-22-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"> Project: California High Speed Train Location: Merced to Fresno Corridor CP-1 Project Number: 2009-138-450 Boring Number: S0090A <input type="checkbox"/> Sample Number: S05 Depth: 21' Sample Type: Undisturbed Description: Poorly Graded Sand (SP), light brown. Test Type: Direct Shear - Consolidated Drained Conditions Remarks: </td> <td style="width: 10%; text-align: center;">N/A</td> <td style="width: 10%; text-align: center;">N/A</td> <td style="width: 10%; text-align: center;">N/A</td> <td style="width: 10%; text-align: center;">N/A</td> </tr> <tr> <td colspan="5" style="text-align: center;">Failure Photographs</td> </tr> </table> | | | | | Project: California High Speed Train Location: Merced to Fresno Corridor CP-1 Project Number: 2009-138-450 Boring Number: S0090A <input type="checkbox"/> Sample Number: S05 Depth: 21' Sample Type: Undisturbed Description: Poorly Graded Sand (SP), light brown. Test Type: Direct Shear - Consolidated Drained Conditions Remarks: | N/A | N/A | N/A | N/A | Failure Photographs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project: California High Speed Train Location: Merced to Fresno Corridor CP-1 Project Number: 2009-138-450 Boring Number: S0090A <input type="checkbox"/> Sample Number: S05 Depth: 21' Sample Type: Undisturbed Description: Poorly Graded Sand (SP), light brown. Test Type: Direct Shear - Consolidated Drained Conditions Remarks: | N/A | N/A | N/A | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Failure Photographs | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tested By: DPD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

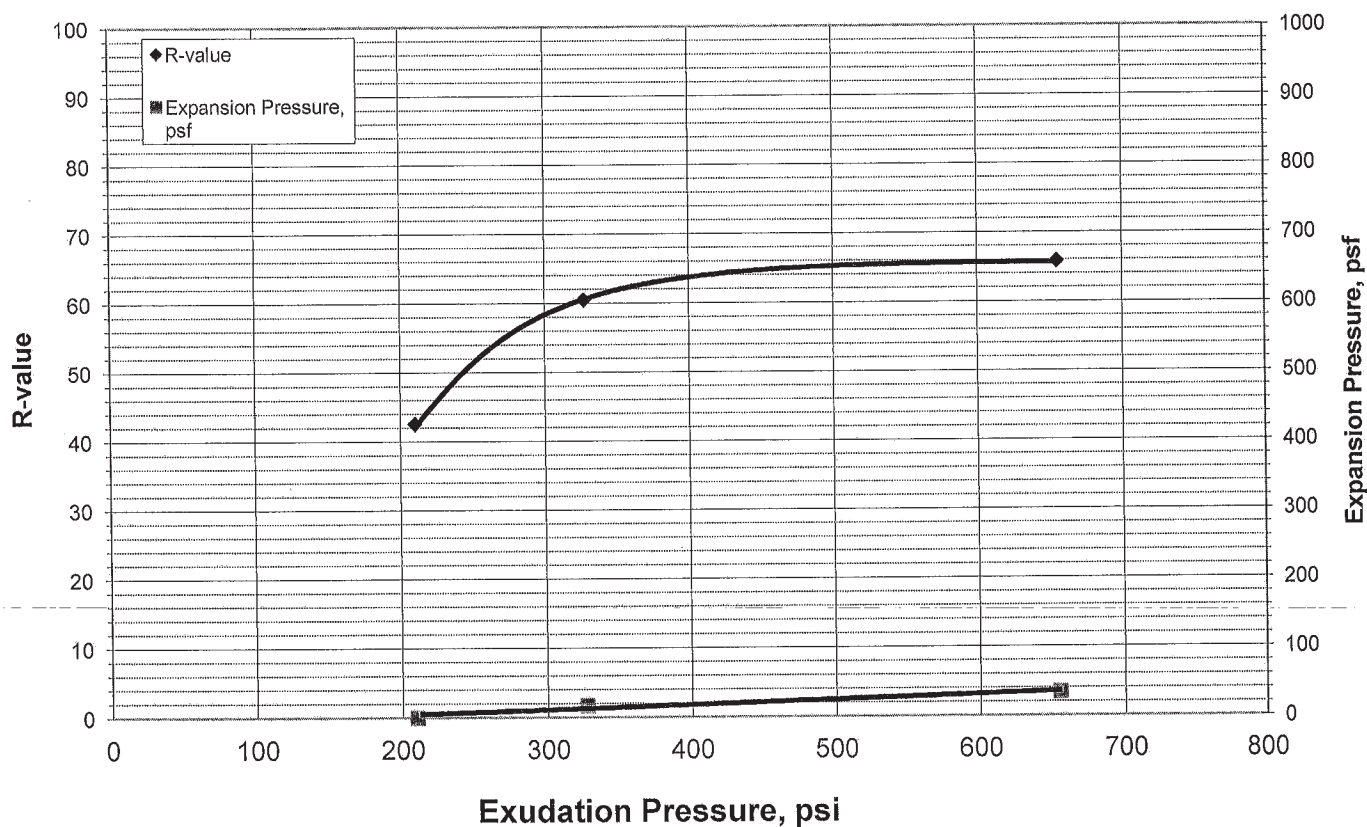






R-value Test Report (Caltrans 301)

| Job No.: | 157-304 | Date: | 05/31/12 | Initial Moisture, | 7.1% |
|------------------------------|--|---------|----------|-------------------|----------|
| Client: | Parikh Consultants, Inc. | Tested | MD | R-value by | 58 |
| Project: | High Speed Rail Project - 2009-138-450 | Reduced | RU | Stabilometer | |
| Sample | S0101A | Checked | DC | Expansion | 10 psf |
| Soil Type: | Dark Olive Brown Silty SAND | | | Pressure | |
| Specimen Number | A | B | C | D | Remarks: |
| Exudation Pressure, psi | 210 | 327 | 655 | | |
| Prepared Weight, grams | 1200 | 1200 | 1200 | | |
| Final Water Added, grams/cc | 70 | 55 | 43 | | |
| Weight of Soil & Mold, grams | 3197 | 3169 | 3083 | | |
| Weight of Mold, grams | 2098 | 2106 | 2078 | | |
| Height After Compaction, in. | 2.59 | 2.56 | 2.43 | | |
| Moisture Content, % | 13.4 | 12.0 | 11.0 | | |
| Dry Density, pcf | 113.3 | 112.2 | 112.8 | | |
| Expansion Pressure, psf | 0.0 | 17.2 | 34.4 | | |
| Stabilometer @ 1000 | | | | | |
| Stabilometer @ 2000 | 63 | 44 | 37 | | |
| Turns Displacement | 5.7 | 4.57 | 4.03 | | |
| R-value | 43 | 60 | 66 | | |

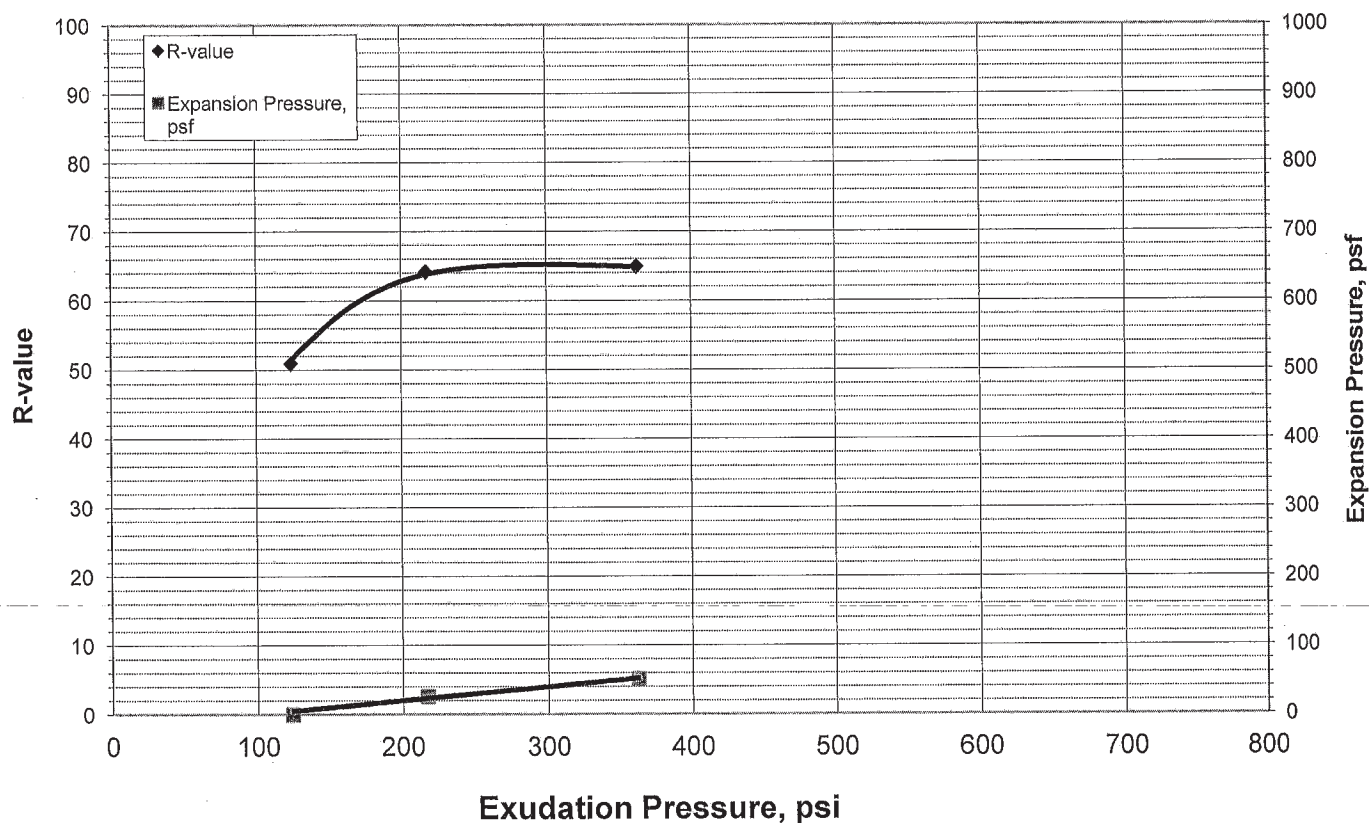


08/22/2012 ADDENDUM 4 - RFP HSR 11-16



R-value Test Report (Caltrans 301)

| Job No.: | 157-304 | Date: | 05/29/12 | Initial Moisture, | 7.8% |
|------------------------------|--|---------|----------|-------------------|----------|
| Client: | Parikh Consultants, Inc. | Tested | MD | R-value by | 65 |
| Project: | High Speed Rail Project - 2009-138-450 | Reduced | RU | Stabilometer | |
| Sample | S0102A | Checked | DC | Expansion | 40 psf |
| Soil Type: | Olive Brown Silty SAND | | | Pressure | |
| Specimen Number | A | B | C | D | Remarks: |
| Exudation Pressure, psi | 124 | 217 | 362 | | |
| Prepared Weight, grams | 1200 | 1200 | 1200 | | |
| Final Water Added, grams/cc | 63 | 37 | 28 | | |
| Weight of Soil & Mold, grams | 3179 | 3202 | 3121 | | |
| Weight of Mold, grams | 2078 | 2099 | 2094 | | |
| Height After Compaction, in. | 2.51 | 2.54 | 2.38 | | |
| Moisture Content, % | 13.4 | 11.1 | 10.3 | | |
| Dry Density, pcf | 117.1 | 118.4 | 118.5 | | |
| Expansion Pressure, psf | 0.0 | 25.8 | 51.6 | | |
| Stabilometer @ 1000 | | | | | |
| Stabilometer @ 2000 | 59 | 40 | 36 | | |
| Turns Displacement | 4.17 | 4.35 | 4.15 | | |
| R-value | 51 | 64 | 65 | | |

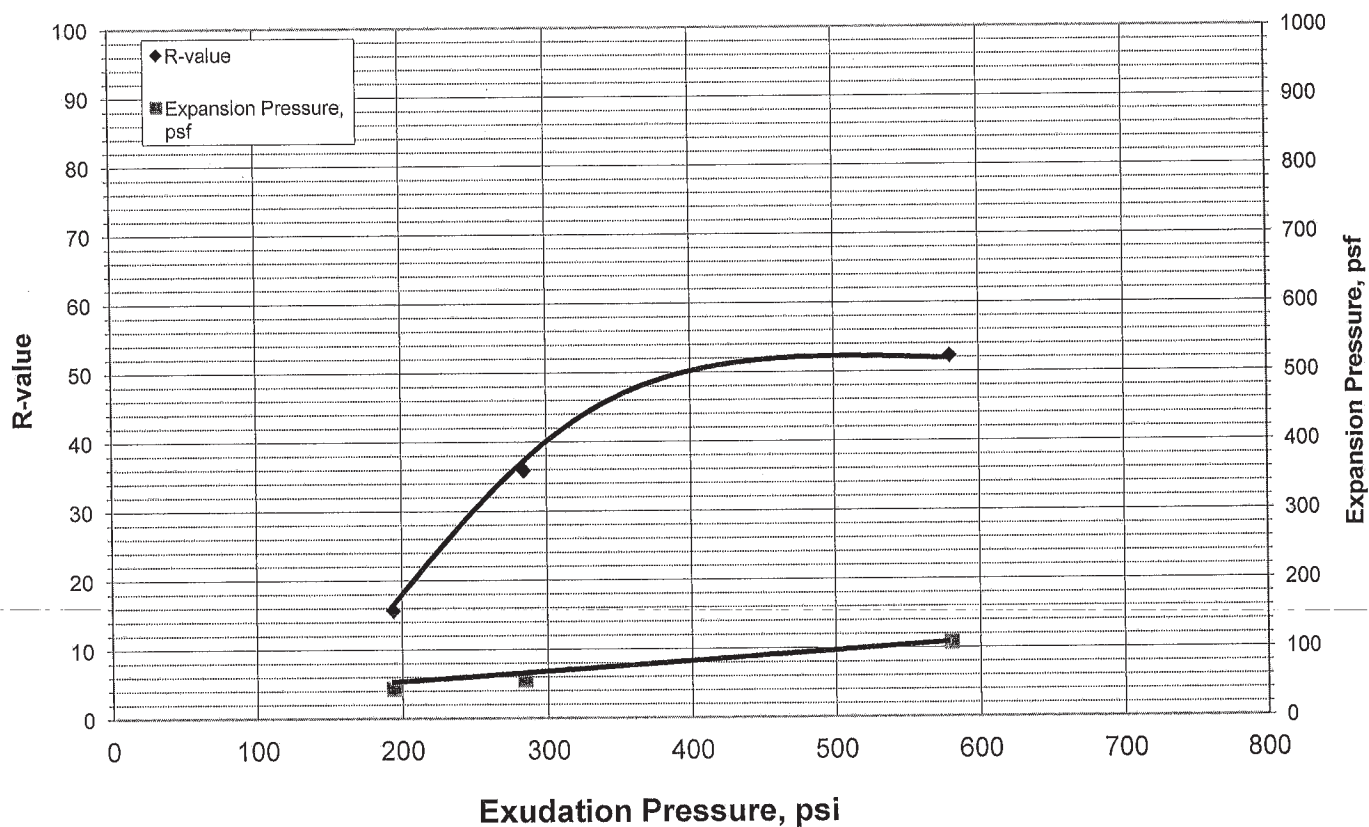


08/22/2012 ADDENDUM 4 - RFP HSR 11-16



R-value Test Report (Caltrans 301)

| Job No.: | 157-304 | Date: | 05/29/12 | Initial Moisture, | 7.7% |
|------------------------------|--|---------|----------|-------------------|----------|
| Client: | Parikh Consultants | Tested | MD | R-value by | 40 |
| Project: | High Speed Rail Project - 2009-138-450 | Reduced | RU | Stabilometer | |
| Sample | S0103A | Checked | DC | Expansion | 65 psf |
| Soil Type: | Dark Olive Brown Clayey SAND | | | Pressure | |
| Specimen Number | A | B | C | D | Remarks: |
| Exudation Pressure, psi | 194 | 580 | 284 | | |
| Prepared Weight, grams | 1200 | 1200 | 1200 | | |
| Final Water Added, grams/cc | 48 | 28 | 37 | | |
| Weight of Soil & Mold, grams | 3217 | 3112 | 3195 | | |
| Weight of Mold, grams | 2107 | 2065 | 2098 | | |
| Height After Compaction, in. | 2.51 | 2.37 | 2.53 | | |
| Moisture Content, % | 12.0 | 10.2 | 11.0 | | |
| Dry Density, pcf | 119.5 | 121.4 | 118.3 | | |
| Expansion Pressure, psf | 43.0 | 107.5 | 55.9 | | |
| Stabilometer @ 1000 | | | | | |
| Stabilometer @ 2000 | 119 | 49 | 80 | | |
| Turns Displacement | 4.67 | 4.5 | 4.61 | | |
| R-value | 16 | 52 | 36 | | |

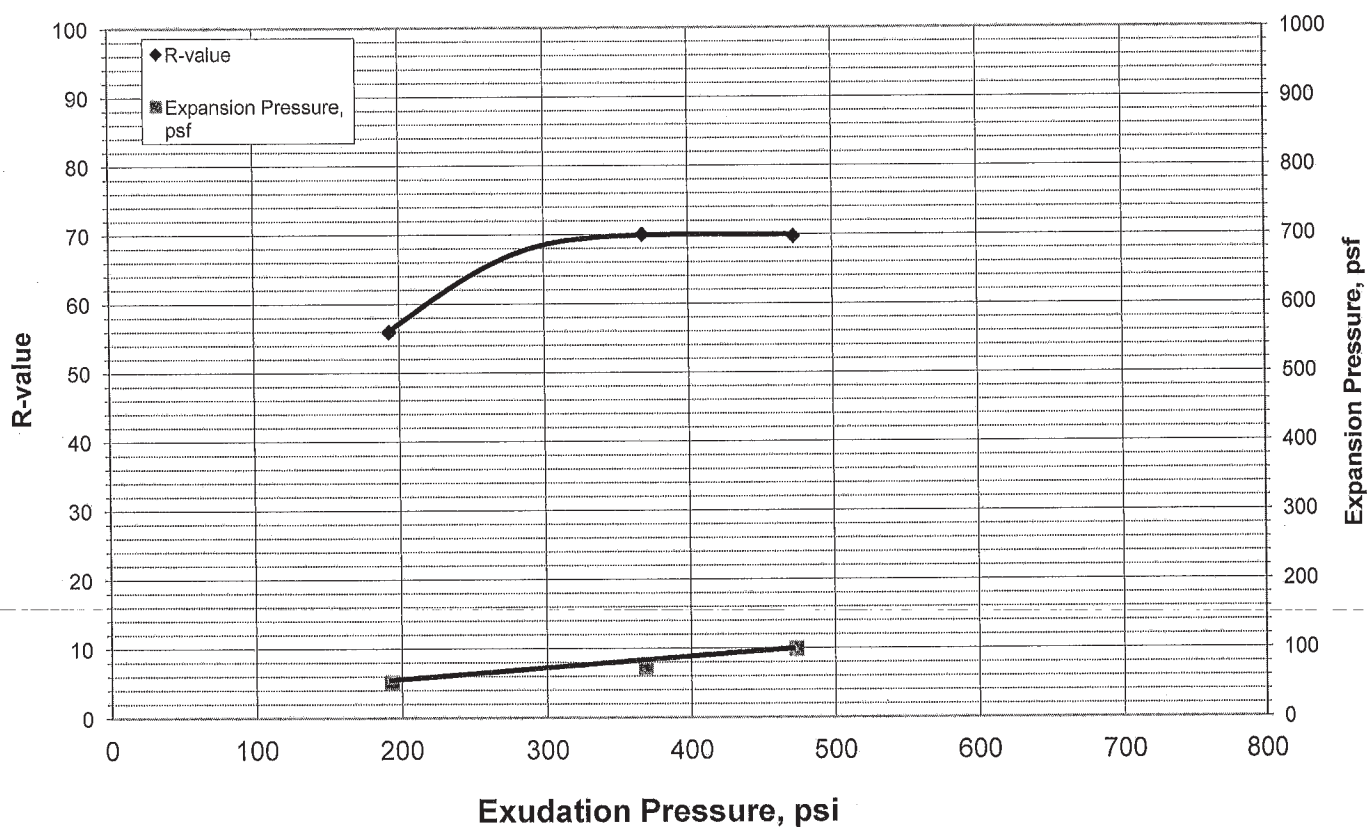


08/22/2012 ADDENDUM 4 - RFP HSR 11-16



R-value Test Report (Caltrans 301)

| Job No.: | 157-304 | Date: | 05/30/12 | Initial Moisture, | 5.8% |
|------------------------------|--|---------|----------|-------------------|----------|
| Client: | Parikh Consultants, Inc. | Tested | MD | R-value by | 68 |
| Project: | High Speed Rail Project - 2009-138-450 | Reduced | RU | Stabilometer | |
| Sample | S0104A | Checked | DC | Expansion | 75 psf |
| Soil Type: | Dark Olive Brown Silty SAND | | | | |
| Specimen Number | A | B | C | D | Remarks: |
| Exudation Pressure, psi | 368 | 193 | 473 | | |
| Prepared Weight, grams | 1200 | 1200 | 1200 | | |
| Final Water Added, grams/cc | 54 | 66 | 47 | | |
| Weight of Soil & Mold, grams | 3181 | 3175 | 3210 | | |
| Weight of Mold, grams | 2102 | 2085 | 2102 | | |
| Height After Compaction, in. | 2.52 | 2.4 | 2.53 | | |
| Moisture Content, % | 10.5 | 11.6 | 9.9 | | |
| Dry Density, pcf | 117.3 | 123.2 | 120.6 | | |
| Expansion Pressure, psf | 73.1 | 51.6 | 98.9 | | |
| Stabilometer @ 1000 | | | | | |
| Stabilometer @ 2000 | 30 | 46 | 33 | | |
| Turns Displacement | 4.72 | 4.39 | 4.29 | | |
| R-value | 70 | 56 | 70 | | |

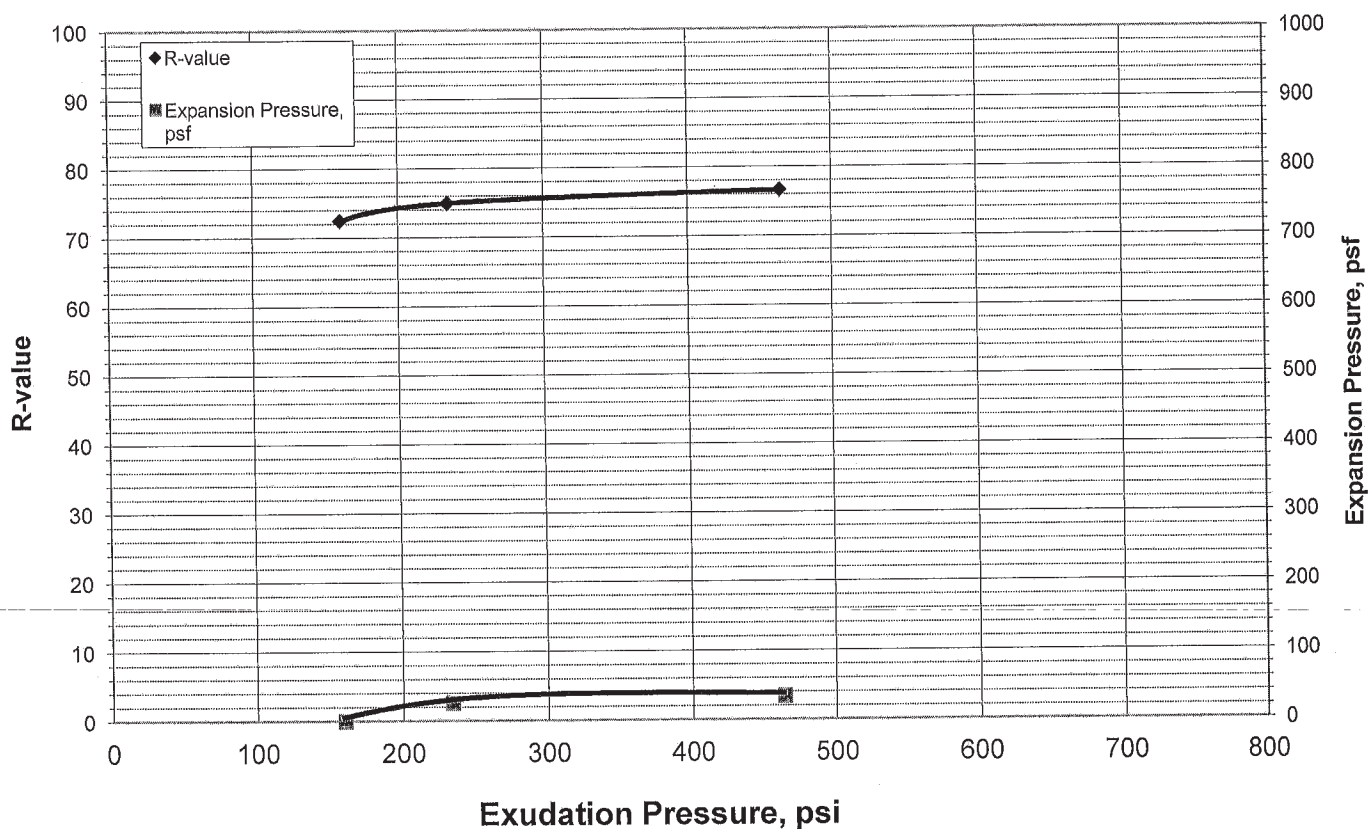


08/22/2012 ADDENDUM 4 - RFP HSR 11-16



R-value Test Report (Caltrans 301)

| Job No.: | 157-304 | Date: | 05/29/12 | Initial Moisture, | 5.3% |
|------------------------------|--|---------|----------|-------------------|----------|
| Client: | Parikh Consultants | Tested | MD | R-value by | 76 |
| Project: | High Speed Rail Project - 2009-138-450 | Reduced | RU | Stabilometer | |
| Sample | S0105A | Checked | DC | Expansion | 40 psf |
| Soil Type: | Dark Olive Brown Silty SAND (slightly plastic) | | | | |
| Specimen Number | A | B | C | D | Remarks: |
| Exudation Pressure, psi | 160 | 464 | 234 | | |
| Prepared Weight, grams | 1200 | 1200 | 1200 | | |
| Final Water Added, grams/cc | 58 | 50 | 54 | | |
| Weight of Soil & Mold, grams | 3163 | 3160 | 3118 | | |
| Weight of Mold, grams | 2106 | 2086 | 2087 | | |
| Height After Compaction, in. | 2.49 | 2.47 | 2.44 | | |
| Moisture Content, % | 10.4 | 9.7 | 10.0 | | |
| Dry Density, pcf | 116.4 | 120.0 | 116.3 | | |
| Expansion Pressure, psf | 0.0 | 34.4 | 25.8 | | |
| Stabilometer @ 1000 | | | | | |
| Stabilometer @ 2000 | 28 | 24 | 25 | | |
| Turns Displacement | 4.44 | 4.21 | 4.29 | | |
| R-value | 72 | 77 | 75 | | |



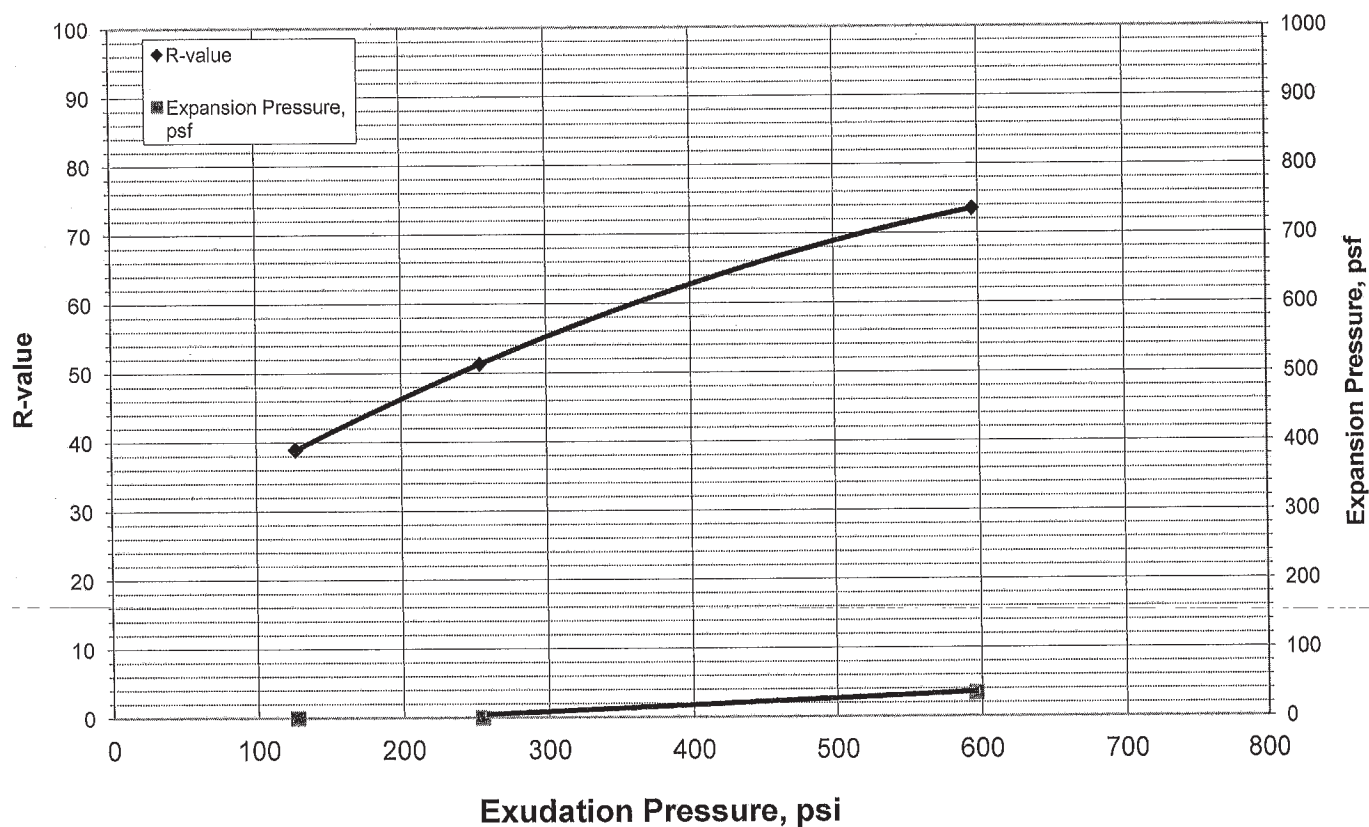
08/22/2012 ADDENDUM 4 - RFP HSR 11-16



R-value Test Report (Caltrans 301)

| | | | | | |
|------------|--|---------|----------|-------------------|-------|
| Job No.: | 157-304 | Date: | 05/31/12 | Initial Moisture, | 3.3% |
| Client: | Parikh Consultants, Inc. | Tested | MD | R-value by | 56 |
| Project: | High Speed Rail Project - 2009-138-450 | Reduced | RU | Stabilometer | |
| Sample | S0107A | Checked | DC | Expansion | 5 psf |
| Soil Type: | Olive Brown Silty SAND | | | Pressure | |

| Specimen Number | A | B | C | D | Remarks: |
|------------------------------|-------|-------|-------|---|----------|
| Exudation Pressure, psi | 596 | 127 | 254 | | |
| Prepared Weight, grams | 1200 | 1200 | 1200 | | |
| Final Water Added, grams/cc | 70 | 107 | 85 | | |
| Weight of Soil & Mold, grams | 3158 | 3190 | 3198 | | |
| Weight of Mold, grams | 2084 | 2102 | 2106 | | |
| Height After Compaction, in. | 2.55 | 2.55 | 2.5 | | |
| Moisture Content, % | 9.3 | 12.5 | 10.6 | | |
| Dry Density, pcf | 116.7 | 114.9 | 119.6 | | |
| Expansion Pressure, psf | 34.4 | 0.0 | 0.0 | | |
| Stabilometer @ 1000 | | | | | |
| Stabilometer @ 2000 | 30 | 74 | 51 | | |
| Turns Displacement | 4.07 | 4.8 | 5.08 | | |
| R-value | 74 | 39 | 51 | | |



08/22/2012 ADDENDUM 4 - RFP HSR 11-16

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0011A | S01 | 3.0 | SM | 5.6 | 115.9 | | | | | | |
| S0011A | S02 | 6.0 | SM | 6.5 | 114.5 | | | | 0.2 | 19.9 | |
| S0011A | S03 | 11.0 | SM | - | - | | | | | | |
| S0011A | S04 | 16.0 | SM | 9.9 | 98.6 | | | | | | |
| S0011A | S05 | 21.0 | ML | 12.2 | 117.2 | | | | | | |
| S0011A | S06 | 26.0 | ML | 32.3 | 88.9 | 39 | 33 | 6 | | | 2.4 |
| S0011A | S07 | 31.0 | SP-SM | 4.2 | 113.4 | | | | 0.0 | 9.2 | |
| S0011A | S08 | 36.0 | ML | 14.6 | 113.1 | | | | | | |
| S0011A | S09 | 41.0 | ML | 6.4 | 91.0 | | | | | | |
| S0011A | S10 | 46.0 | SM | 12.0 | 105.4 | | | | | | |
| S0011A | S11 | 51.0 | SM | 6.5 | 116.8 | | | | | | |
| S0011A | S12 | 55.5 | SM | 15.5 | 107.1 | | | | | | |
| S0011A | S13 | 60.5 | ML | 25.6 | 97.0 | | | | | | |
| S0011A | S14 | 71.0 | SM | 7.8 | 113.6 | | | | | | |
| S0011A | S15 | 80.5 | SM | 20.4 | - | | | | | | |
| S0011A | S16 | 91.0 | SM | 2.8 | 98.5 | | | | | | |
| S0011A | S17 | 101.0 | ML | 35.8 | 83.0 | | | | | | |
| S0012A | S02 | 6.0 | SC | 23.1 | 102.2 | | | | | | |
| S0012A | S03 | 11.0 | SM | 9.1 | 104.8 | NP | NP | NP | | | |
| S0012A | S05 | 21.0 | SM | 5.3 | - | | | | 0.0 | 15.0 | |
| S0012A | S06 | 26.0 | SP | 12.7 | - | NP | NP | NP | | | |
| S0013A | S01 | 6.0 | CL | 7.7 | 118.4 | 23 | 14 | 9 | | | 2.4 |
| S0013A | S03 | 11.0 | CL | 18.2 | 95.2 | | | | | | |
| S0013A | S05 | 20.5 | SM | 10.2 | 112.1 | | | | 0.0 | 47.8 | |
| S0013A | S06 | 26.0 | SM | 15.0 | 100.1 | | | | | | |
| S0013A | S07 | 31.0 | ML | 33.0 | 87.3 | 37 | 28 | 9 | | | |
| S0014A | S01 | 3.0 | ML | 9.6 | 120.5 | | | | | | |
| S0014A | S02 | 6.0 | SM | 7.5 | 108.3 | | | | 0.1 | 29.5 | |
| S0014A | S03 | 11.0 | SP | 2.2 | 102.5 | | | | | | |
| S0014A | S04 | 16.0 | SP | 2.6 | - | | | | | | |
| S0014A | S05 | 21.0 | SM | 11.7 | - | | | | 0.0 | 38.9 | |
| S0014A | S06 | 26.0 | ML | 16.0 | - | NP | NP | NP | | | |
| S0014A | S07 | 31.0 | ML | 28.7 | 93.6 | | | | | | |
| S0014A | S08 | 36.0 | ML | 10.5 | 99.0 | | | | | 55.6 | |
| S0014A | S09 | 41.0 | ML | 25.9 | 96.8 | | | | | | |
| S0014A | S10 | 46.0 | SM | 14.9 | 110.6 | | | | | | |
| S0014A | S11 | 51.0 | SC | 11.6 | 119.0 | | | | 0.0 | 36.4 | |
| S0014A | S12 | 56.0 | SM | 9.6 | 115.7 | | | | | | |
| S0014A | S13 | 61.0 | SP | 4.1 | - | | | | | | |
| S0014A | S14 | 71.0 | SM | 13.7 | - | | | | 0.4 | 37.6 | |
| S0014A | S15 | 81.0 | SM | 15.0 | - | | | | | | |
| S0014A | S16 | 91.0 | ML | 29.4 | 90.3 | NP | NP | NP | | | |
| S0014A | S17 | 101.0 | ML | 39.7 | 78.5 | | | | | | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
 GEOTECHNICAL CONSULTANTS
 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9A

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0014A | S18 | 110.5 | SP-SM | 19.2 | 107.4 | | | | 0.4 | 7.4 | |
| S0014A | S19 | 121.0 | SP-SM | 20.1 | 104.3 | | | | | | |
| S0014A | S20 | 131.0 | SP-SM | 20.5 | 106.1 | | | | 0.0 | 7.2 | |
| S0014A | S21 | 141.0 | SP-SM | 25.3 | 97.1 | | | | | | |
| S0014A | S22 | 151.0 | ML | 57.8 | 69.8 | | | | 0.1 | 89.2 | |
| S0015R | S03 | 11.0 | SM | 8.9 | 121.5 | | | | 3.6 | 39.2 | |
| S0015R | S06 | 26.0 | ML | 9.5 | 121.3 | NP | NP | NP | | | |
| S0015R | S08 | 36.0 | SM | 20.9 | - | | | | | 30.7 | |
| S0015R | S09 | 41.0 | ML | - | - | | | | | | |
| S0015R | S10 | 46.0 | ML | 10.2 | 126.0 | | | | | | |
| S0015R | S14 | 70.5 | SC | 26.3 | 94.5 | | | | | | |
| S0015R | S16 | 91.0 | SM | 31.0 | - | NP | NP | NP | | | |
| S0015R | S18 | 111.0 | SP | 24.1 | - | | | | | | |
| S0015R | S22 | 151.0 | SP | 33.1 | - | | | | | | |
| S0016R | S03 | 16.0 | SP | 7.6 | 106.6 | | | | 3.5 | 3.9 | |
| S0016R | S05 | 26.0 | SM | 12.8 | - | | | | | | |
| S0016R | S09 | 41.0 | SP | 12.1 | - | | | | 0.0 | 4.3 | |
| S0016R | S13 | 71.0 | ML | 32.9 | - | | | | | | |
| S0016R | S15 | 91.0 | ML | 33.2 | - | NP | NP | NP | | | |
| S0016R | S16 | 101.0 | ML | - | - | | | | | | |
| S0016R | S17 | 111.0 | ML | 35.9 | 81.6 | 37 | 31 | 6 | | | |
| S0016R | S19 | 131.0 | SP-SM | - | - | | | | | | |
| S0016R | S20 | 151.0 | SM | 48.2 | 68.3 | | | | | | |
| S0016R | S21 | 171.0 | SM | 16.1 | - | | | | | | |
| S0017R | S03 | 11.0 | ML | 19.8 | - | | | | 0.0 | 76.7 | |
| S0017R | S06 | 26.0 | CL | 16.7 | 115.3 | 25 | 16 | 9 | | | |
| S0017R | S10 | 46.0 | SP-SM | 6.0 | 109.6 | | | | 1.1 | 7.0 | |
| S0017R | S12 | 56.0 | ML | 22.0 | 102.3 | | | | 0.1 | 53.1 | |
| S0017R | S13 | 61.0 | ML | 22.0 | - | 25 | 21 | 4 | | | |
| S0017R | S15 | 81.0 | SP-SM | 15.6 | - | | | | 0.0 | 8.9 | |
| S0017R | S19 | 121.0 | ML | 35.4 | - | 41 | 30 | 11 | | | |
| S0017R | S22 | 151.0 | CL | 45.4 | 73.5 | | | | | | |
| S0018A | S02 | 5.0 | SM | 8.0 | 120.9 | | | | 0.1 | 35.8 | |
| S0018A | S03 | 11.0 | SM | 3.3 | 97.3 | | | | 0.0 | 26.8 | |
| S0018A | S06 | 26.0 | ML | 10.1 | 112.8 | | | | | | |
| S0018A | S07 | 27.5 | ML | 4.8 | - | | | | | | |
| S0018A | S08 | 31.0 | ML | 32.2 | - | | | | | 96.6 | |
| S0018A | S09 | 36.0 | ML | - | - | | | | | | |
| S0018A | S11 | 46.0 | ML | 24.5 | 98.2 | | | | | | |
| S0018A | S12 | 51.0 | SM | - | - | | | | | | |
| S0018A | S14 | 60.0 | ML | 14.5 | 113.4 | | | | | | |
| S0018A | S17 | 91.0 | ML | 37.4 | 84.6 | NP | NP | NP | | | |
| S0018A | S20 | 121.0 | SP-SM | 41.0 | 78.6 | | | | | | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
 GEOTECHNICAL CONSULTANTS
 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9B

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0018A | S23 | 151.0 | SP-SM | 20.6 | 99.2 | | | | 0.0 | 8.9 | |
| S0018A | S25 | 170.0 | CL | 31.3 | 90.3 | 38 | 24 | 14 | | | |
| S0019A | S02 | 6.0 | SW-SM | 11.4 | - | | | | | | |
| S0019A | S03 | 7.5 | SW-SM | 4.0 | - | | | | 1.5 | 10.8 | |
| S0019A | S05 | 12.5 | SP | 1.9 | - | | | | 0.0 | 2.1 | |
| S0019A | S06 | 16.0 | SP | 1.6 | - | | | | 0.2 | 1.6 | |
| S0019A | S08 | 21.0 | SP | 6.5 | - | | | | | | |
| S0019A | 11 | 36.0 | SW | - | - | | | | | | |
| S0019A | S12 | 41.0 | SP | 3.0 | 101.3 | | | | | | |
| S0019A | S14 | 51.0 | SP | 7.0 | 106.3 | | | | | | |
| S0019A | S16 | 61.0 | ML | 29.3 | 91.2 | | | | | | |
| S0019A | S19 | 91.0 | SM | 29.0 | 92.2 | | | | | | |
| S0019A | S21 | 111.0 | ML | 35.2 | 82.8 | 48 | 37 | 11 | | | |
| S0019A | S23 | 131.0 | SM | 37.1 | 79.0 | | | | 0.0 | 49.3 | |
| S0019A | S25 | 151.0 | ML | 41.9 | 75.0 | | | | 0.0 | 50.8 | |
| S0020Ra | S03 | 11.0 | ML | 16.6 | 106.2 | | | | 1.4 | 54.4 | |
| S0020Ra | S04 | 16.0 | SP | 14.1 | 114.1 | | | | | | |
| S0020Ra | S05 | 21.0 | SP | 28.4 | 99.0 | | | | 0.0 | 4.4 | |
| S0020Ra | S07 | 31.0 | SW-SM | 6.2 | 110.5 | | | | 0.9 | 7.9 | |
| S0020Ra | S09 | 40.5 | SP-SM | 7.2 | 109.0 | | | | | | |
| S0020Ra | S11 | 51.0 | SP-SM | 2.4 | 108.0 | | | | 0.3 | 6.6 | |
| S0020Ra | S12 | 55.0 | CL-ML | 11.6 | 118.1 | 24 | 18 | 6 | | | |
| S0020Ra | S13 | 60.0 | SP-SM | 30.0 | - | | | | | | |
| S0020Ra | S15 | 80.5 | MH | 43.0 | 74.6 | 52 | 40 | 12 | | | 1.8 |
| S0020Ra | S17 | 100.5 | SP-SM | 29.3 | 88.4 | | | | | | |
| S0020Ra | S19 | 121.0 | SP-SM | - | - | | | | | | |
| S0020Ra | S22 | 150.0 | SM | 52.5 | 62.2 | | | | | 24.0 | |
| S0020Ra | S24 | 170.0 | CL | 23.3 | 100.9 | 31 | 15 | 16 | | | |
| S0021Ra | S01 | 2.0 | ML | - | - | | | | | | |
| S0021Ra | S02 | 6.0 | SM | 5.5 | 106.3 | | | | | 45.9 | |
| S0021Ra | S04 | 16.0 | SM | - | - | | | | | | |
| S0021Ra | S05 | 21.0 | ML | 13.1 | 113.5 | | | | | 30.6 | |
| S0021Ra | S11 | 50.0 | SM | 20.2 | 102.8 | | | | | | |
| S0021Ra | S13 | 60.0 | ML | 26.4 | 90.5 | NP | NP | NP | | | 2.6 |
| S0021Ra | S15 | 80.0 | ML | 31.8 | 86.6 | NP | NP | NP | | | |
| S0021Ra | S16 | 91.0 | SP-SM | 17.4 | 105.8 | | | | 0.7 | 5.9 | |
| S0021Ra | S17 | 100.0 | ML | 31.4 | 94.9 | | | | | | 1.7 |
| S0021Ra | S18 | 111.0 | SW-SM | 18.9 | 103.6 | | | | 0.0 | 11.1 | |
| S0021Ra | S20 | 131.0 | SW-SM | 22.3 | 99.2 | | | | | | |
| S0021Ra | S22 | 150.0 | ML | 32.1 | 89.6 | | | | | | |
| S0021Ra | S24 | 170.5 | SM | 17.0 | 114.4 | | | | 0.0 | 34.1 | |
| S0022Ra | S01 | 11.0 | SM | - | - | | | | | | |
| S0022Ra | S02 | 16.0 | SM | 6.5 | 110.6 | | | | | 22.2 | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
 GEOTECHNICAL CONSULTANTS
 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9C

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0022Ra | S04 | 26.0 | ML | 19.8 | 96.4 | | | | | | |
| S0022Ra | S05 | 31.0 | SP-SM | 4.7 | 105.8 | | | | | | |
| S0022Ra | S06 | 36.0 | SP-SM | 4.0 | 111.0 | | | | 0.1 | 7.3 | |
| S0022Ra | S07 | 41.0 | SM | 9.6 | 130.1 | | | | 4.7 | 14.0 | |
| S0022Ra | S10 | 56.0 | SP-SM | 9.0 | 107.2 | | | | 0.0 | 5.4 | |
| S0022Ra | S13 | 81.0 | SM | 23.1 | 99.4 | | | | | | |
| S0022Ra | S16 | 111.0 | SM | 20.1 | 104.6 | | | | | | |
| S0022Ra | S18 | 131.0 | ML | 40.1 | 75.2 | NP | NP | NP | | | |
| S0022Ra | S20 | 151.0 | SM | 23.0 | 98.1 | | | | | | |
| S0023Aa | S01 | 11.0 | ML | 16.3 | 110.9 | | | | | 57.4 | |
| S0023Aa | S03 | 31.0 | SM | 8.0 | - | | | | 15.6 | 24.2 | |
| S0023Aa | S05 | 51.0 | SM | 16.1 | 102.0 | | | | 0.2 | 22.7 | |
| S0023Aa | S06 | 61.0 | SM | 30.4 | 88.5 | | | | | | |
| S0023Aa | S07 | 71.0 | SM | - | - | | | | | | |
| S0024Ra | S02 | 6.0 | SM | 10.3 | 125.4 | | | | | | |
| S0024Ra | S03 | 11.0 | ML | 29.6 | 91.7 | 35 | 30 | 5 | | | |
| S0024Ra | S06 | 26.0 | SM | 2.9 | 108.0 | | | | | 12.6 | |
| S0024Ra | S07 | 31.0 | SP-SM | 2.6 | 106.8 | | | | 0.0 | 5.6 | |
| S0024Ra | S10 | 46.0 | ML | 9.8 | 120.5 | | | | | | |
| S0024Ra | S11 | 51.0 | ML | 27.8 | 93.3 | 39 | 29 | 10 | | | |
| S0024Ra | S13 | 61.0 | SM | - | - | | | | 0.0 | 16.7 | |
| S0024Ra | S14 | 71.0 | SM | 19.7 | 108.3 | | | | | | |
| S0024Ra | S16 | 91.0 | ML | 33.8 | 86.0 | | | | | | |
| S0024Ra | S18 | 111.0 | SM | 20.0 | 106.9 | | | | | | |
| S0024Ra | S19 | 121.0 | SM | 16.5 | 111.6 | | | | | | |
| S0024Ra | S21 | 140.0 | SM | 38.6 | 76.8 | | | | | | |
| S0024Ra | S24 | 170.0 | ML | 30.0 | 95.0 | 43 | 28 | 15 | | | |
| S0025Ra | S01 | 4.0 | SM | 4.6 | 107.1 | | | | | 28.0 | |
| S0025Ra | S03 | 11.0 | ML | 35.7 | - | | | | | | |
| S0025Ra | S04 | 16.0 | ML | 13.3 | 104.1 | | | | | 74.0 | |
| S0025Ra | S06 | 26.0 | SP | - | - | | | | 0.2 | 4.5 | |
| S0025Ra | S07 | 31.0 | ML | 21.1 | 101.8 | | | | | 79.0 | |
| S0025Ra | S08 | 36.0 | SP-SM | 5.7 | 112.6 | | | | | | |
| S0025Ra | S10 | 46.0 | SM | 11.6 | 113.2 | | | | 1.0 | 14.8 | |
| S0025Ra | S12 | 61.0 | SM | 15.4 | 93.1 | | | | | | |
| S0025Ra | S15 | 91.0 | ML | 39.6 | 78.1 | NP | NP | NP | | | |
| S0025Ra | S18 | 110.5 | ML | 30.8 | 88.1 | | | | | 54.0 | |
| S0026Ra | S01 | 3.0 | ML | 6.0 | 110.2 | | | | | 51.3 | |
| S0026Ra | S02 | 5.5 | ML | 14.6 | 105.5 | | | | | | |
| S0026Ra | S03 | 11.0 | ML | 21.9 | 101.2 | | | | | | |
| S0026Ra | S05 | 21.0 | SP | 5.1 | 110.3 | | | | | | |
| S0026Ra | S08 | 36.0 | ML | 14.2 | 97.1 | | | | | 53.2 | |
| S0026Ra | S09 | 41.0 | ML | 6.8 | 109.0 | | | | | | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
 GEOTECHNICAL CONSULTANTS
 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9D

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0026Ra | S10 | 46.0 | ML | 22.7 | 102.3 | | | | | | |
| S0026Ra | S12 | 56.0 | SM | 9.0 | 127.8 | | | | | 27.5 | |
| S0026Ra | S13 | 60.0 | ML | 16.6 | 106.6 | | | | 0.0 | 53.3 | |
| S0026Ra | S14 | 71.0 | ML | 26.9 | 91.9 | | | | | | |
| S0026Ra | S15 | 81.0 | ML | 16.1 | 88.5 | | | | | 55.1 | |
| S0026Ra | S18 | 110.0 | ML | 29.4 | 88.7 | NP | NP | NP | | | |
| S0026Ra | S20 | 130.0 | ML | 33.1 | 84.1 | | | | | | |
| S0026Ra | S22 | 151.0 | SP-SM | 18.1 | 112.0 | | | | 0.0 | 6.7 | |
| S0027Aa | S02 | 6.0 | ML | 12.1 | 111.9 | | | | | | |
| S0027Aa | S05 | 21.0 | SP-SM | 3.6 | 104.8 | | | | 3.0 | 5.2 | |
| S0027Aa | S07 | 31.0 | SM | 12.6 | 95.4 | | | | | 37.9 | |
| S0027Aa | S09 | 41.0 | SP | 3.1 | 98.9 | | | | | | |
| S0027Aa | S11 | 51.0 | CL | 21.8 | 103.9 | 30 | 21 | 9 | | | |
| S0027Aa | S13 | 60.0 | CL | 33.0 | 75.6 | | | | | | |
| S0027Aa | S16 | 91.0 | SP-SM | 35.5 | 80.9 | | | | 0.0 | 7.6 | |
| S0028A | S01 | 3.0 | SM | 6.0 | 118.0 | | | | 3.4 | 37.5 | |
| S0028A | S02 | 5.0 | SM | 7.7 | - | | | | | | |
| S0028A | S03 | 11.0 | ML | 18.4 | 92.7 | | | | | | |
| S0028A | S04 | 16.0 | ML | 30.2 | 92.1 | | | | | 99.9 | |
| S0028A | S05 | 21.0 | ML | 13.6 | 113.5 | | | | | | |
| S0028A | S06 | 26.0 | ML | 21.5 | 103.0 | NP | NP | NP | | | |
| S0028A | S07 | 31.0 | SW | 1.5 | - | | | | | | |
| S0028A | S08 | 36.0 | SW | 3.0 | - | | | | 0.0 | 3.8 | |
| S0028A | S09 | 41.0 | SW-SM | 3.5 | - | | | | 0.0 | 11.0 | |
| S0028A | S11 | 51.0 | SW-SM | 3.3 | - | | | | | | |
| S0028A | S12 | 56.0 | SW-SM | 12.2 | 114.1 | | | | | | |
| S0028A | S14 | 71.0 | ML | 25.6 | - | | | | 0.1 | 68.1 | |
| S0028A | S15 | 81.0 | ML | 27.0 | - | 34 | 26 | 8 | | | |
| S0028A | S16 | 91.0 | SM | 16.3 | 103.3 | | | | | | |
| S0028A | S17 | 101.0 | SP-SM | 19.2 | 104.5 | | | | 0.0 | 9.5 | |
| S0029A | S01 | 2.0 | ML | 9.4 | 115.4 | | | | | 66.1 | |
| S0029A | S03 | 11.0 | SM | - | - | | | | | | |
| S0029A | S04 | 16.0 | SP | 1.7 | - | | | | 0.1 | 3.3 | |
| S0029A | S06 | 26.0 | SP | 5.6 | - | | | | | | |
| S0029A | S08 | 36.0 | SM | 14.5 | - | | | | | | |
| S0030A | S01 | 2.0 | ML | 10.9 | 117.3 | | | | 0.0 | 69.5 | |
| S0030A | S03 | 11.0 | SM | 14.6 | - | | | | | | |
| S0030A | S05 | 21.0 | SP | 1.7 | - | | | | 0.4 | 2.1 | |
| S0030A | S06 | 26.0 | CL | 21.3 | - | | | | 0.2 | 57.4 | |
| S0030A | S07 | 31.0 | ML | 24.2 | - | 25 | 22 | 3 | | | |
| S0031A | S01 | 2.0 | CL-ML | 11.0 | 123.9 | | | | | | |
| S0031A | S02 | 5.5 | CL-ML | 17.5 | 95.2 | | | | | | |
| S0031A | S04 | 16.0 | SM | 7.2 | - | | | | 0.0 | 29.0 | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



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California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9E

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0031A | S05 | 21.0 | SP | 2.2 | - | | | | 1.0 | 4.8 | |
| S0031A | S06 | 26.0 | ML | 28.4 | - | | | | | | |
| S0031A | S07 | 31.0 | ML | 2.2 | - | | | | | | |
| S0034R | S02 | 6.0 | SP-SM | 7.3 | 112.2 | | | | | 5.6 | |
| S0034R | S03 | 11.0 | SP-SM | - | - | | | | | | |
| S0034R | S06 | 26.0 | SM | 17.9 | - | NP | NP | NP | | | |
| S0034R | S08 | 36.0 | SM | 23.5 | - | | | | 10.4 | 17.6 | |
| S0034R | S10 | 46.0 | SM | 19.7 | - | NP | NP | NP | 3.2 | 48.3 | |
| S0034R | S12 | 56.0 | SM | 14.6 | - | | | | | | |
| S0034R | S14 | 71.0 | SM | 15.4 | - | | | | 0.0 | 48.7 | |
| S0040A | S01 | 3.0 | SM | 5.1 | 128.1 | | | | | | |
| S0040A | S02 | 6.0 | SM | 5.2 | 112.2 | | | | 0.1 | 40.8 | |
| S0040A | S03 | 11.0 | SP | 1.7 | - | | | | | | |
| S0040A | S04 | 16.0 | SP | 1.3 | - | | | | 0.4 | 2.1 | |
| S0040A | S05 | 21.0 | ML | 12.3 | - | | | | | | |
| S0040A | S06 | 26.0 | ML | - | - | | | | | | |
| S0040A | S07 | 31.0 | ML | 7.6 | - | NP | NP | NP | | | |
| S0040A | S08 | 36.0 | ML | 13.7 | 108.9 | | | | | | |
| S0040A | S09 | 41.0 | SW-SM | 5.2 | - | | | | 0.0 | 11.9 | |
| S0040A | S10 | 46.0 | ML | 34.3 | 84.5 | | | | | | |
| S0040A | S11 | 51.0 | SM | 27.7 | - | | | | | | |
| S0040A | S12 | 56.0 | SW-SM | 16.9 | 104.4 | | | | 0.0 | 54.6 | |
| S0040A | S13 | 61.0 | ML | 25.5 | - | | | | | | |
| S0040A | S14 | 71.0 | SM | 13.6 | 96.9 | | | | | | |
| S0040A | S15 | 81.0 | ML | 8.4 | - | | | | | | |
| S0040A | S16 | 91.0 | ML | 11.0 | 98.9 | | | | | | |
| S0040A | S17 | 101.0 | ML | 15.5 | - | NP | NP | NP | | | |
| S0041A | S02 | 6.0 | ML | 18.1 | - | | | | | | |
| S0041A | S03 | 10.5 | SM | - | - | | | | | | |
| S0041A | S04 | 16.0 | SM | 10.4 | - | | | | 0.4 | 23.4 | |
| S0041A | S05 | 21.0 | SM | 9.4 | - | | | | | | |
| S0041A | S06 | 31.0 | ML | 16.2 | 109.9 | | | | | 60.0 | |
| S0042A | S02 | 6.0 | SP | 2.7 | - | | | | 0.5 | 2.5 | |
| S0042A | S03 | 11.0 | SP | 3.4 | - | | | | | | |
| S0042A | S06 | 26.0 | SP | 2.2 | - | | | | 0.3 | 1.5 | |
| S0046A | S02 | 6.0 | ML | - | - | | | | | | |
| S0046A | S03 | 11.0 | ML | - | - | | | | | | |
| S0046A | S04 | 16.0 | ML | 26.4 | - | 29 | 24 | 5 | | | |
| S0046A | S05 | 21.0 | SP | - | - | | | | | | |
| S0046A | S07 | 31.0 | SM | 7.6 | - | | | | | 44.7 | |
| S0046A | S08 | 33.0 | ML | 29.5 | - | 34 | 27 | 7 | | | |
| S0046A | S10 | 41.0 | ML | 14.1 | 96.9 | | | | | 54.4 | |
| S0046A | S12 | 51.0 | SM | 19.3 | - | | | | | | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



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California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9F

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0046A | S13 | 56.0 | SM | - | - | | | | | | |
| S0046A | S15 | 71.0 | SM | 7.6 | - | | | | 30.0 | 15.4 | |
| S0046A | S18 | 91.0 | SP-SM | 5.6 | - | | | | | | |
| S0046A | S20 | 111.0 | SP-SM | 7.6 | - | | | | 0.4 | 8.0 | |
| S0050R | S02 | 6.0 | SM | - | - | | | | | | |
| S0050R | S03 | 11.0 | SP | 21.6 | 105.3 | NP | NP | NP | | | |
| S0050R | S04 | 16.0 | SM | - | - | | | | | | |
| S0050R | S05 | 21.0 | SP | 37.1 | - | | | | 2.4 | 2.2 | |
| S0050R | S08 | 36.0 | ML | 42.1 | 74.7 | NP | NP | NP | | | |
| S0050R | S11 | 51.0 | SP | 20.9 | - | | | | 0.0 | 2.1 | |
| S0050R | S14 | 71.0 | SM | 13.5 | 120.6 | | | | 0.3 | 22.7 | |
| S0055A | S01 | 3.0 | SM | 13.6 | 106.7 | | | | 0.0 | 40.8 | |
| S0055A | S03 | 11.0 | CH | 20.3 | 90.1 | 51 | 21 | 30 | | | |
| S0055A | S04 | 16.0 | CH | 22.7 | 92.0 | | | | | | 6.8 |
| S0055A | S05 | 21.0 | SM | 13.0 | 121.9 | | | | | 48.0 | |
| S0055A | S07 | 30.5 | CL-ML | 21.4 | 98.8 | 19 | 14 | 5 | | | |
| S0056A | S03 | 16.0 | SM | 12.4 | 113.0 | | | | | | |
| S0056A | S05 | 28.5 | ML | 11.3 | 86.5 | | | | | 79.3 | |
| S0056A | S07 | 36.0 | SM | 17.8 | 96.9 | | | | | | |
| S0056A | S09 | 46.0 | ML | 22.3 | 78.3 | | | | | | |
| S0056A | S10 | 51.0 | SM | 15.6 | - | | | | 0.0 | 22.0 | |
| S0056A | S11 | 56.0 | ML | 5.1 | 77.5 | | | | | | |
| S0056A | S14 | 81.0 | SP-SM | 9.4 | - | | | | 0.1 | 6.5 | |
| S0056A | S16 | 101.0 | CL | 23.7 | - | 36 | 21 | 15 | | | |
| S0058A | S01 | 3.0 | SM | - | - | | | | | | |
| S0058A | S02 | 6.0 | SM | 8.1 | 111.7 | | | | 0.0 | 22.5 | |
| S0058A | S03 | 11.0 | CL | 16.1 | 113.2 | 24 | 14 | 10 | | | 1.9 |
| S0058A | S04 | 21.0 | SM | 11.9 | 122.5 | | | | | | |
| S0058A | S05 | 31.0 | ML | 14.9 | 97.4 | NP | NP | NP | | | |
| S0062A | S02 | 5.0 | CL | 9.3 | 110.2 | | | | | | |
| S0062A | S03 | 11.0 | CL | 17.6 | 110.8 | 37 | 18 | 19 | | | 6.4 |
| S0062A | S06 | 26.0 | SM | 25.6 | 85.4 | | | | | | |
| S0062A | S07 | 31.0 | SP-SM | - | - | | | | | | |
| S0062A | S08 | 36.0 | SP-SM | 5.5 | 90.7 | | | | 0.0 | 6.0 | |
| S0062A | S10 | 46.0 | SP-SM | - | - | | | | | | |
| S0062A | S12 | 56.0 | SP-SM | 8.1 | 92.8 | | | | | | |
| S0062A | S14 | 71.0 | SP-SM | 6.6 | 95.0 | | | | 1.6 | 5.4 | |
| S0062A | S16 | 91.0 | CL | 14.9 | 118.2 | 33 | 16 | 17 | | | 5.6 |
| S0066A | S01 | 3.0 | SM | 2.7 | 114.8 | | | | | | |
| S0066A | S02 | 6.0 | SM | 5.0 | 118.2 | | | | | | |
| S0066A | S03 | 16.0 | ML | 11.1 | 104.7 | | | | 0.2 | 69.7 | |
| S0066A | S04 | 26.0 | SW-SM | 2.8 | 99.5 | | | | 0.0 | 9.4 | |
| S0068A | S02 | 6.0 | SC | 8.9 | 128.1 | | | | 0.0 | 32.1 | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



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California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9G

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0068A | S03 | 11.0 | SC | 12.0 | 92.2 | | | | | 22.0 | |
| S0068A | S04 | 16.0 | SM | - | - | | | | | | |
| S0068A | S05 | 21.0 | SM | 19.5 | 88.2 | | | | | | |
| S0068A | S07 | 31.0 | SP | 4.5 | 96.3 | | | | 0.0 | 3.9 | |
| S0072A | S02 | 11.0 | SW-SM | 4.0 | 102.9 | | | | 0.2 | 5.3 | |
| S0072A | S03 | 16.0 | GP-GM | 2.3 | - | | | | 53.2 | 5.6 | |
| S0072A | S04 | 26.0 | ML | 27.4 | 93.2 | 34 | 25 | 9 | | | |
| S0074A | S01 | 3.0 | SM | 11.0 | 116.8 | | | | | 49.0 | |
| S0074A | S03 | 11.0 | SM | 10.9 | 88.2 | | | | | 47.0 | |
| S0074A | S04 | 16.0 | CL | 20.5 | 106.7 | | | | | | 4.9 |
| S0074A | S06 | 26.0 | CL | 21.8 | 105.2 | 46 | 26 | 20 | | | |
| S0076A | S02 | 6.0 | SW-SM | 3.8 | 106.0 | | | | 1.4 | 9.0 | |
| S0076A | S03 | 11.0 | ML | 16.7 | 114.2 | | | | | | |
| S0076A | S04 | 16.0 | CL-ML | - | - | | | | | 97.3 | |
| S0076A | S07 | 27.5 | SM | 7.1 | - | | | | 0.2 | 16.8 | |
| S0076A | S10 | 41.0 | ML | 25.3 | - | | | | | | |
| S0076A | S11 | 46.0 | SM | 21.9 | - | | | | | 45.6 | |
| S0076A | S14 | 56.0 | SM | 6.3 | - | | | | 0.3 | 12.3 | |
| S0076A | S17 | 71.0 | SM | 10.6 | 105.3 | | | | | | |
| S0076A | S19 | 91.0 | SP-SM | 14.8 | 117.7 | | | | | | |
| S0077A | S01 | 3.0 | SM | 8.7 | 113.0 | | | | | | |
| S0077A | S03 | 11.0 | CL | 24.0 | 101.0 | 35 | 20 | 15 | | | 1.7 |
| S0077A | S05 | 21.0 | ML | 20.9 | 106.4 | | | | | | |
| S0077A | S06 | 26.0 | ML | 29.2 | 93.7 | 34 | 25 | 9 | | | 0.8 |
| S0077A | S07 | 31.0 | SM | 23.2 | 102.4 | | | | | 47.7 | |
| S0078A | S02 | 6.0 | SM | 15.3 | 113.0 | | | | 0.0 | 45.5 | |
| S0078A | S04 | 16.0 | CL | 25.6 | 98.2 | 38 | 24 | 14 | | | 2.04 |
| S0078A | S05 | 21.0 | SM | 11.0 | 101.6 | | | | | | |
| S0078A | S06 | 26.0 | CL | 21.4 | 104.6 | 31 | 21 | 10 | | | |
| S0078A | S07 | 31.0 | ML | 19.7 | 104.5 | | | | | 53.8 | |
| S0081A | S04 | 16.0 | SM | 8.2 | 99.8 | | | | | | |
| S0081A | S06 | 26.0 | SM | 15.6 | - | | | | 0.0 | 40.8 | |
| S0081A | S07 | 31.0 | SM | 8.6 | - | | | | | 28.8 | |
| S0081A | S08 | 36.0 | SP-SM | 3.7 | 89.7 | | | | | | |
| S0081A | S09 | 41.0 | ML | 31.5 | - | | | | | 74.5 | |
| S0081A | S11 | 51.0 | MH | 47.8 | - | 51 | 39 | 12 | | | |
| S0081A | S14 | 71.0 | SM | 28.8 | - | | | | 0.4 | 21.8 | |
| S0082R | S03 | 11.0 | ML | 9.4 | - | | | | | | |
| S0082R | S05 | 21.0 | SW-SM | 2.8 | - | | | | 0.0 | 6.3 | |
| S0082R | S07 | 31.0 | SP-SM | 4.9 | - | | | | 2.5 | 11.6 | |
| S0082R | S08 | 36.0 | SM | - | - | | | | | | |
| S0082R | S09 | 41.0 | SW-SM | 4.7 | - | | | | 0.0 | 10.5 | |
| S0082R | S11 | 51.0 | SP-SM | 18.4 | - | | | | 0.0 | 9.9 | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
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 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9H

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0082R | S14 | 71.0 | SW-SM | 10.9 | 128.9 | | | | 28.9 | 11.6 | |
| S0082R | S16 | 91.0 | CL | - | - | | | | | | |
| S0082R | S17 | 101.0 | CL | 21.1 | 106.5 | | | | | | |
| S0082R | S20 | 131.0 | SP-SM | 14.0 | 119.6 | | | | | | |
| S0082R | S22 | 151.0 | ML | 19.2 | 108.4 | | | | | | |
| S0083A | S01 | 2.5 | SM | 10.2 | 119.6 | | | | | | |
| S0083A | S04 | 16.0 | SP-SM | 2.9 | 102.1 | | | | 0.1 | 5.4 | |
| S0083A | S06 | 26.0 | SP-SM | - | - | | | | | | |
| S0083A | S08 | 36.0 | SP-SM | 5.1 | 112.6 | | | | | | |
| S0083A | S10 | 46.0 | SW-SM | 6.0 | 109.6 | | | | 0.7 | 8.3 | |
| S0085R | S03 | 6.0 | SM | 12.5 | 110.1 | | | | | | |
| S0085R | S05 | 21.0 | ML | - | - | 38 | 27 | 11 | | | |
| S0085R | S06 | 26.0 | SM | - | - | | | | | | |
| S0085R | S07 | 31.0 | SM | 10.0 | 104.9 | | | | | | |
| S0085R | S08 | 36.0 | ML | 21.2 | 83.8 | | | | | 84.1 | |
| S0085R | S09 | 41.0 | CL | 34.2 | 86.2 | | | | | | |
| S0085R | S10 | 46.0 | CL | 38.7 | 79.1 | 45 | 32 | 13 | | | 2.5 |
| S0085R | S11 | 51.0 | SM | 30.0 | 83.8 | | | | | 19.8 | |
| S0085R | S15 | 81.0 | ML | 30.2 | 90.9 | | | | | 55.0 | |
| S0085R | S18 | 111.0 | CL | 23.0 | 102.2 | | | | | | |
| S0085R | S21 | 141.0 | SM | 26.7 | 99.3 | | | | | | |
| S0085R | S23 | 161.0 | SM | 17.6 | 111.1 | | | | | | |
| S0086Ra | S02 | 6.0 | SM | 15.2 | 115.2 | | | | | | |
| S0086Ra | S03 | 11.0 | ML | 10.0 | 125.3 | | | | | | 5.8 |
| S0086Ra | S05 | 21.0 | SP | 11.8 | 115.1 | | | | 6.6 | 1.8 | |
| S0086Ra | S06 | 23.0 | SW-SM | 13.2 | - | | | | 3.6 | 7.7 | |
| S0086Ra | S08 | 31.0 | ML | - | - | | | | | | |
| S0086Ra | S09 | 33.0 | ML | 34.5 | - | | | | | | |
| S0086Ra | S10 | 36.0 | ML | 29.4 | 89.7 | | | | | | |
| S0086Ra | S11 | 41.0 | SM | 20.3 | 93.4 | | | | | | |
| S0086Ra | S12 | 46.0 | SM | 21.5 | 100.3 | | | | | | |
| S0086Ra | S13 | 51.0 | SM | - | - | | | | | | |
| S0086Ra | S16 | 61.0 | SP-SM | 18.3 | 107.4 | | | | 0.2 | 6.9 | |
| S0086Ra | S17 | 81.0 | SM | 19.7 | 110.4 | | | | | | |
| S0086Ra | S20 | 111.0 | SM | 22.7 | 103.0 | | | | | | |
| S0086Ra | S22 | 131.0 | SC | 16.8 | 114.7 | | | | 0.0 | 30.3 | |
| S0086Ra | S24 | 151.0 | SC | 15.6 | 114.9 | | | | | | |
| S0087Aa | S02 | 10.0 | SM | 8.4 | 126.9 | | | | | | |
| S0087Aa | S04 | 21.0 | SP-SM | 14.5 | 99.4 | | | | 0.3 | 7.4 | |
| S0087Aa | S05 | 26.0 | SM | - | - | | | | | | |
| S0087Aa | S07 | 36.0 | SC | 16.9 | - | | | | 0.3 | 19.7 | |
| S0087Aa | S08 | 41.0 | SM | - | - | | | | | | |
| S0087Aa | S09 | 46.0 | SP-SM | 7.7 | - | | | | | | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
 GEOTECHNICAL CONSULTANTS
 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9I

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0087Aa | S11 | 56.0 | CL | 44.6 | - | 43 | 25 | 18 | | | |
| S0087Aa | S13 | 61.0 | SP-SM | 7.7 | - | | | | 0.0 | 8.9 | |
| S0087Aa | S14 | 71.0 | ML | - | - | | | | | | |
| S0087Aa | S15 | 81.0 | SM | 13.5 | - | | | | 0.8 | 42.5 | |
| S0087Aa | S18 | 111.0 | SM | 23.1 | - | | | | | | |
| S0087Aa | S21 | 141.0 | SP-SM | 19.7 | - | | | | | | |
| S0088Aa | S02 | 6.0 | ML | 17.2 | 110.4 | | | | | | |
| S0088Aa | S03 | 11.0 | SM | 8.1 | - | | | | | | |
| S0088Aa | S05 | 21.0 | SP-SM | 4.5 | - | | | | 2.6 | 7.2 | |
| S0088Aa | S07 | 31.0 | SP-SM | 6.3 | - | | | | 0.0 | 9.5 | |
| S0088Aa | S11 | 51.0 | ML | 26.1 | - | | | | | | |
| S0088Aa | S13 | 61.0 | SM | 12.9 | - | | | | 0.0 | 13.9 | |
| S0088Aa | S16 | 91.0 | ML | 17.0 | - | | | | 0.0 | 56.1 | |
| S0089Aa | S01 | 3.0 | CL | 16.7 | 111.2 | | | | | | 4 |
| S0089Aa | S02 | 6.0 | CL | 7.2 | - | 28 | 17 | 11 | | | |
| S0089Aa | S03 | 11.0 | SM | - | - | | | | | | |
| S0089Aa | S04 | 16.0 | SM | 3.3 | - | | | | | | |
| S0089Aa | S05 | 21.0 | SM | 8.5 | 114.5 | | | | | | |
| S0089Aa | S06 | 26.0 | SM | 6.0 | - | | | | 0.2 | 36.3 | |
| S0089Aa | S07 | 31.0 | SP-SM | 4.3 | 95.9 | | | | | | |
| S0090Aa | S02 | 6.0 | SM | 9.5 | 123.7 | | | | 0.1 | 37.4 | 4.9 |
| S0090Aa | S03 | 11.0 | SP | 2.3 | 100.6 | | | | 1.1 | 3.7 | |
| S0090Aa | S05 | 21.0 | SP | - | - | | | | | | |
| S0091A | S01 | 2.0 | SM | - | - | | | | | | |
| S0091A | S02 | 6.0 | SM | 6.9 | 102.7 | | | | | | |
| S0091A | S03 | 11.0 | SP | 2.5 | - | | | | 2.1 | 4.4 | |
| S0091A | S05 | 21.0 | SP | 10.7 | - | | | | | | |
| S0091A | S06 | 26.0 | SP-SM | 5.2 | - | | | | 0.1 | 8.2 | |
| S0091A | S07 | 31.0 | SP-SM | 4.0 | - | | | | | | |
| S0097A | S03 | 11.0 | ML | 17.2 | 103.9 | | | | | | |
| S0097A | S05 | 21.0 | ML | 42.5 | 76.8 | 47 | 32 | 15 | | | |
| S0097A | S06 | 26.0 | ML | - | - | | | | | | |
| S0097A | S07 | 31.0 | ML | 34.5 | 84.1 | | | | | 90.5 | |
| S0097A | S08 | 36.0 | SM | 11.1 | 103.7 | | | | 0.0 | 13.4 | |
| S0097A | S09 | 41.0 | ML | 38.4 | - | 39 | 30 | 9 | | | |
| S0097A | S15 | 71.0 | SM | 12.3 | - | | | | 0.1 | 17.9 | |
| S0097A | S17 | 81.0 | CL | 24.2 | - | 35 | 20 | 15 | | | |
| S0098A | S02 | 6.0 | CL | 7.1 | 124.7 | 23 | 14 | 9 | | | |
| S0098A | S03 | 11.0 | SM | - | - | | | | | | |
| S0098A | S04 | 16.0 | SM | 7.7 | 110.7 | | | | 0.2 | 14.6 | |
| S0098A | S05 | 21.0 | CL | 14.3 | 112.4 | | | | | | 2.7 |
| S0098A | S06 | 26.0 | CL | 15.3 | 116.3 | 33 | 17 | 16 | | | |
| S0098A | S08 | 36.0 | ML | 6.7 | 99.0 | | | | | | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
 GEOTECHNICAL CONSULTANTS
 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9J

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0098A | S09 | 41.0 | ML | 45.5 | 74.3 | 49 | 35 | 14 | | | |
| S0098A | S11 | 51.0 | ML | 16.7 | 82.6 | | | | | | |
| S0098A | S13 | 61.0 | SM | 19.3 | 105.7 | | | | | | |
| S0098A | S15 | 81.0 | CL | 14.4 | 119.6 | | | | | | |
| S0098A | S18 | 111.0 | ML | 18.9 | 110.9 | | | | | | |
| S0099A | S02 | 6.0 | ML | 10.2 | 109.9 | | | | | 57.4 | |
| S0099A | S03 | 11.0 | ML | 9.6 | 115.1 | | | | | | |
| S0099A | S05 | 21.0 | ML | 7.7 | 101.2 | | | | | | |
| S0099A | S07 | 31.0 | SP | 5.1 | - | | | | 0.0 | 1.9 | |
| S0099A | S10 | 46.0 | SP | 4.2 | - | | | | 0.0 | 3.7 | |
| S0099A | S12 | 56.0 | CL | 19.8 | - | 36 | 20 | 16 | | | |
| S0099A | S13 | 57.5 | CL-ML | 29.5 | - | | | | | | |
| S0099A | S16 | 66.0 | SW-SM | 4.4 | - | | | | 6.2 | 7.5 | |
| S0099A | S19 | 81.0 | SM | 16.9 | - | | | | | | |
| S0099A | S20 | 91.0 | CL-ML | 27.9 | - | | | | | | |
| S0106A | S02 | 6.0 | SW-SM | 4.2 | - | | | | 2.4 | 10.9 | |
| S0106A | S05 | 16.0 | SP-SM | 3.3 | - | | | | 2.4 | 5.8 | |
| S0106A | S06 | 21.0 | SP-SM | 10.7 | 105.4 | | | | | | |
| S0106A | S07 | 26.0 | ML | 11.8 | - | NP | NP | NP | | | |
| S0106A | S09 | 36.0 | SP-SM | 3.0 | - | | | | 0.4 | 6.6 | |
| S0106A | S10 | 41.0 | SP-SM | - | - | | | | | | |
| S0106A | S12 | 51.0 | SM | - | - | | | | | | |
| S0106A | S18 | 101.0 | SM | - | - | | | | | | |
| S0106A | S19 | 102.5 | SM | 31.6 | - | | | | 0.3 | 14.2 | |
| S0108A | S03 | 11.0 | ML | 18.1 | 105.8 | | | | | | |
| S0108A | S05 | 21.0 | SM | 9.0 | - | | | | 1.6 | 15.3 | |
| S0108A | S06 | 26.0 | SW-SM | 14.4 | - | | | | 24.9 | 11.8 | |
| S0108A | S08 | 36.0 | SW-SM | 11.9 | - | | | | 0.5 | 9.2 | |
| S0108A | S10 | 41.0 | SW-SM | 8.0 | - | | | | 0.5 | 7.3 | |
| S0108A | S12 | 46.0 | SW-SM | 10.8 | - | | | | 5.7 | 10.9 | |
| S0108A | S14 | 51.0 | SM | 16.4 | - | | | | | | |
| S0108A | S16 | 61.0 | SM | - | - | | | | | | |
| S0108A | S19 | 91.0 | SM | 16.2 | 116.3 | | | | | | |
| S0110R | S02 | 6.0 | ML | - | - | | | | | | |
| S0110R | S03 | 11.0 | SM | 14.0 | - | | | | 0.0 | 15.6 | |
| S0110R | S04 | 16.0 | SP | 27.2 | 90.1 | | | | | | |
| S0110R | S05 | 21.0 | SP | 14.0 | - | | | | 0.0 | 3.5 | |
| S0110R | S08 | 36.0 | SC | 23.1 | - | NP | NP | NP | | | |
| S0110R | S09 | 41.0 | SC | 16.9 | - | | | | 7.2 | 34.0 | |
| S0110R | S13 | 61.0 | SM | 40.1 | - | | | | 0.8 | 20.2 | |
| S0110R | S16 | 92.5 | SM | 41.4 | - | | | | | | |
| S0112A | S02 | 5.5 | SM | 12.0 | 113.9 | | | | | | |
| S0112A | S04 | 16.0 | SP | 2.4 | - | | | | | | |

08/22/2012 ADDENDUM 4 - RFP HSR 11-16



PARIKH CONSULTANTS, INC.
 GEOTECHNICAL CONSULTANTS
 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9K

| Borehole | Sample Number | Depth | Classification | Water Content | Dry Density | Liquid Limit | Plastic Limit | Plasticity Index | % > Sieve 4 | % < Sieve 200 | Unconfined Compressive Strength (tsf) |
|----------|---------------|-------|----------------|---------------|-------------|--------------|---------------|------------------|-------------|---------------|---------------------------------------|
| S0112A | S05 | 21.0 | SP | 2.4 | - | | | | 0.4 | 1.5 | |
| S0112A | S06 | 26.0 | SP | - | - | | | | | | |
| S0112A | S07 | 31.0 | SP | 3.6 | - | | | | 0.3 | 4.3 | |
| S0112A | S09 | 41.0 | CL | 23.8 | - | 45 | 23 | 22 | | | |
| S0112A | S13 | 61.0 | ML | 22.1 | - | | | | 1.1 | 50.9 | |



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 MATERIALS ENGINEERING

California High Speed Train Merced to Fresno Corridor CP-1
 FRESNO AND MADERA COUNTIES, CALIFORNIA

JOB NO: 2009-138-450

PLATE NO: B-9L



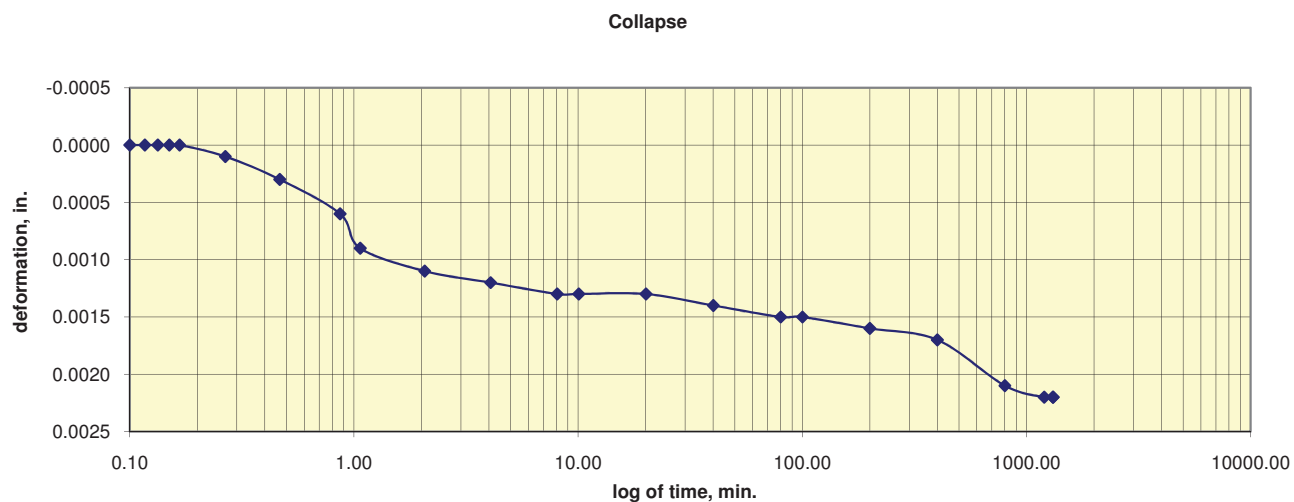
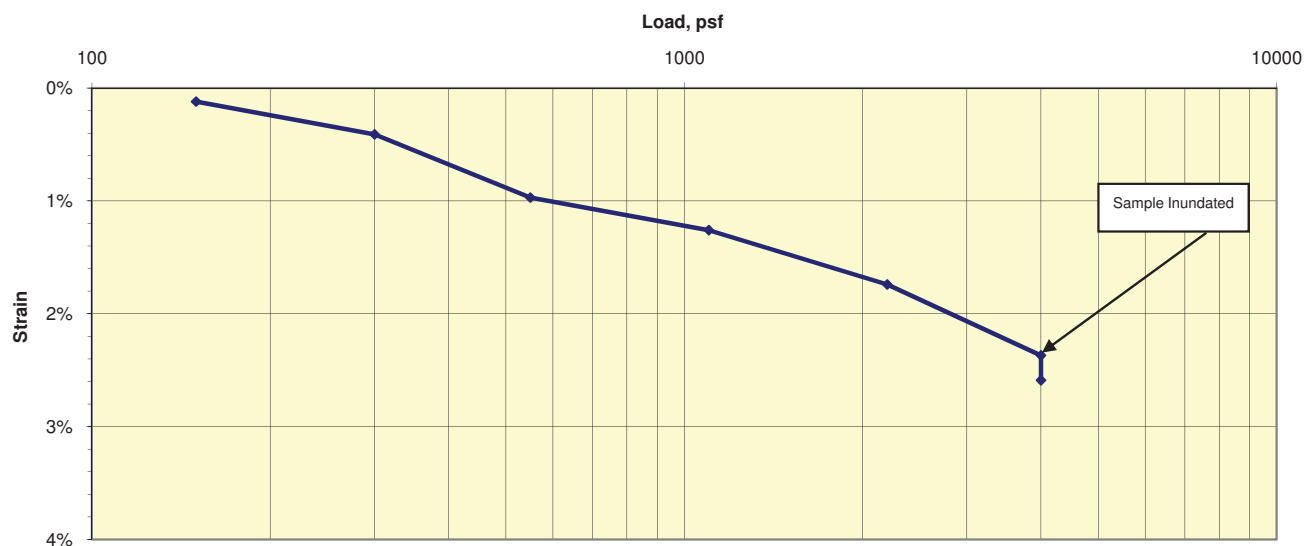
Collapse Test Report

ASTM D5333

Job No.: 157-310 **Boring:** S0029A **Date:** 6/28/2012
Client: Parikh Consultants, Inc. **Sample:** S03 **Tested By:** MD
Project: California High Speed Train **Proj. No.:** 2009-138-450 **Depth, ft.:** 11 **Checked:** PJ/DC
Soil Description: Light Gray Silty SAND (Cemented)

| | | | | | | | | | |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--|--|
| Load, psf | 150 | 300 | 550 | 1100 | 2200 | 4000 | 4000 | | |
| Deformation, in.: | 0.0012 | 0.0041 | 0.0097 | 0.0126 | 0.0174 | 0.0237 | 0.0259 | | |

| | Initial | Final | | Remarks: |
|---------------------------|----------|-------|------------------------------|----------|
| Moisture Content % | 7.8% | 11.8% | Load at Collapse, psf | |
| Dry Density, pcf | 122.1 | 125.4 | 4000 | |
| Void Ratio | 0.381 | 0.346 | % Collapse | |
| Saturation % | 55.3% | 92.1% | 0.22% | |
| Specific Gravity - | Assumed: | 2.7 | Measured: | |



08/22/2012 ADDENDUM 4 - RFP HSR 11-16

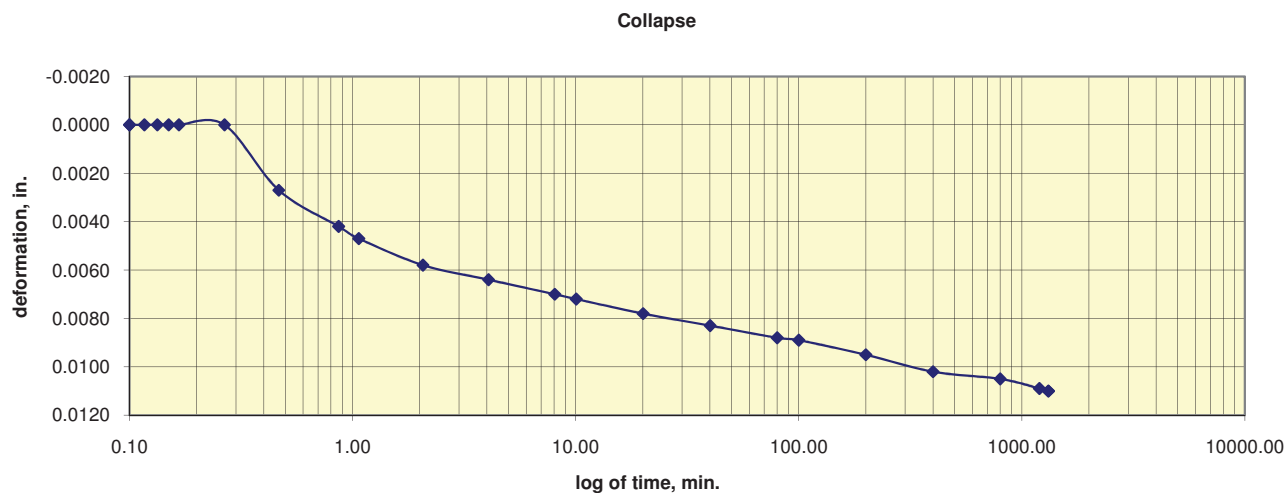
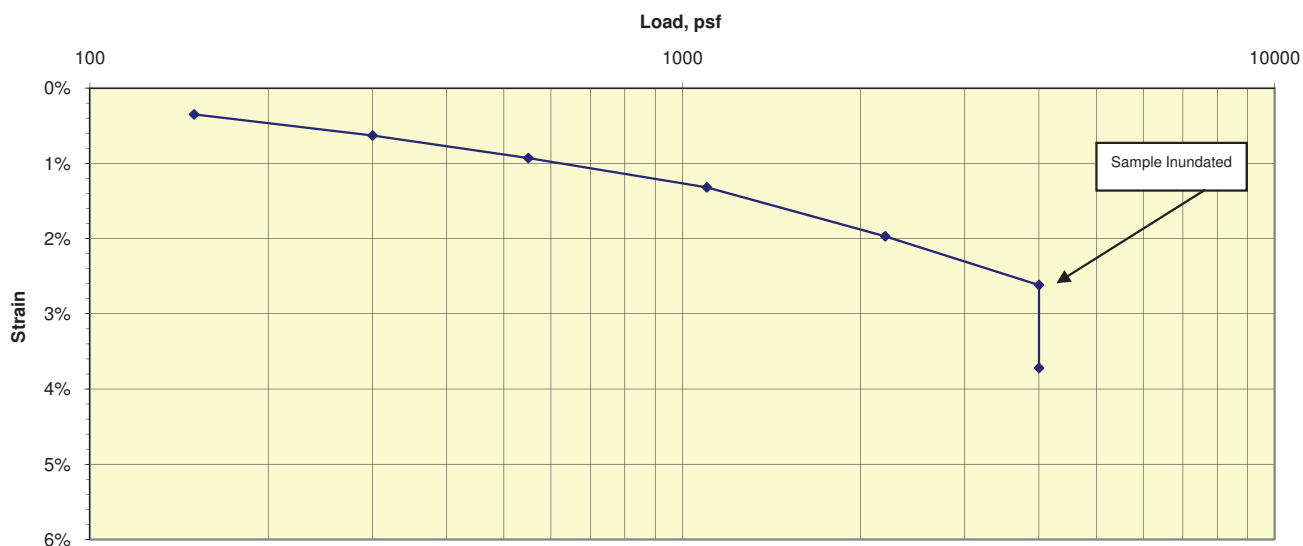


Collapse Test Report ASTM D5333

| | | |
|--|-------------------------|-----------------|
| Job No.: 157-310 | Boring: S0041A | Date: 6/28/2012 |
| Client: Parikh Consultants, Inc. | Sample: S03 | Tested By: MD |
| Project: California High Speed Train | Proj. No.: 2009-138-450 | Depth, ft.: 11 |
| Soil Description: Reddish Yellow Silty SAND (Cemented) | | |
| Checked: PJ/DC | | |

| Load, psf | 150 | 300 | 550 | 1100 | 2200 | 4000 | 4000 | | |
|-------------------|--------|--------|--------|--------|--------|--------|--------|--|--|
| Deformation, in.: | 0.0035 | 0.0063 | 0.0093 | 0.0132 | 0.0197 | 0.0262 | 0.0372 | | |

| | Initial | Final | Load at Collapse, psf | Remarks: |
|--------------------|--------------|-----------|-----------------------|----------|
| Moisture Content % | 7.3% | 14.5% | 4000 | |
| Dry Density, pcf | 109.5 | 113.8 | % Collapse | |
| Void Ratio | 0.541 | 0.482 | 1.13% | |
| Saturation % | 36.5% | 81.0% | | |
| Specific Gravity - | Assumed: 2.7 | Measured: | | |



08/22/2012 ADDENDUM 4 - RFP HSR 11-16

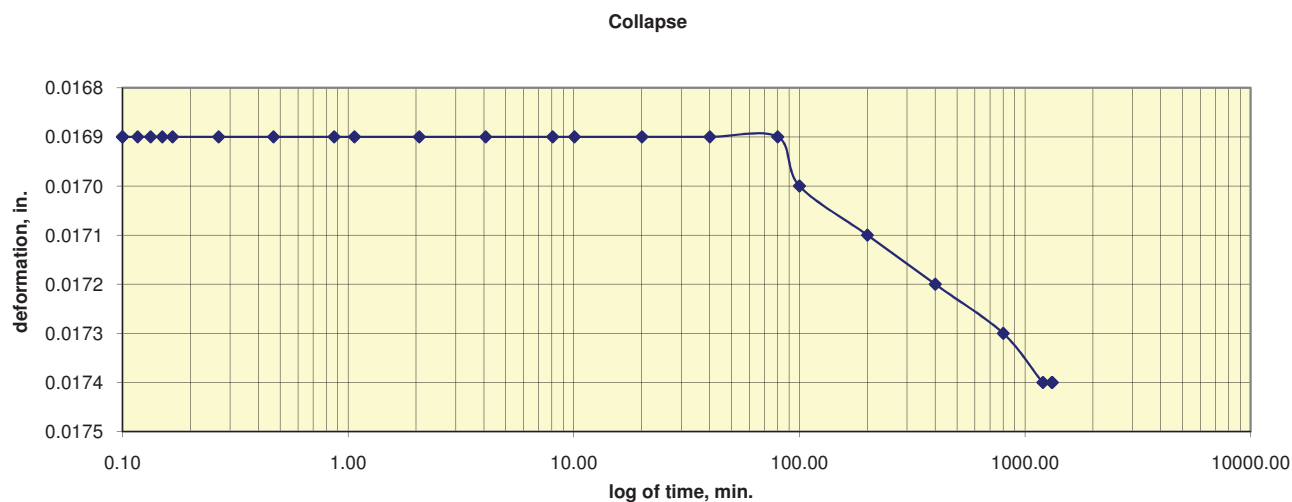
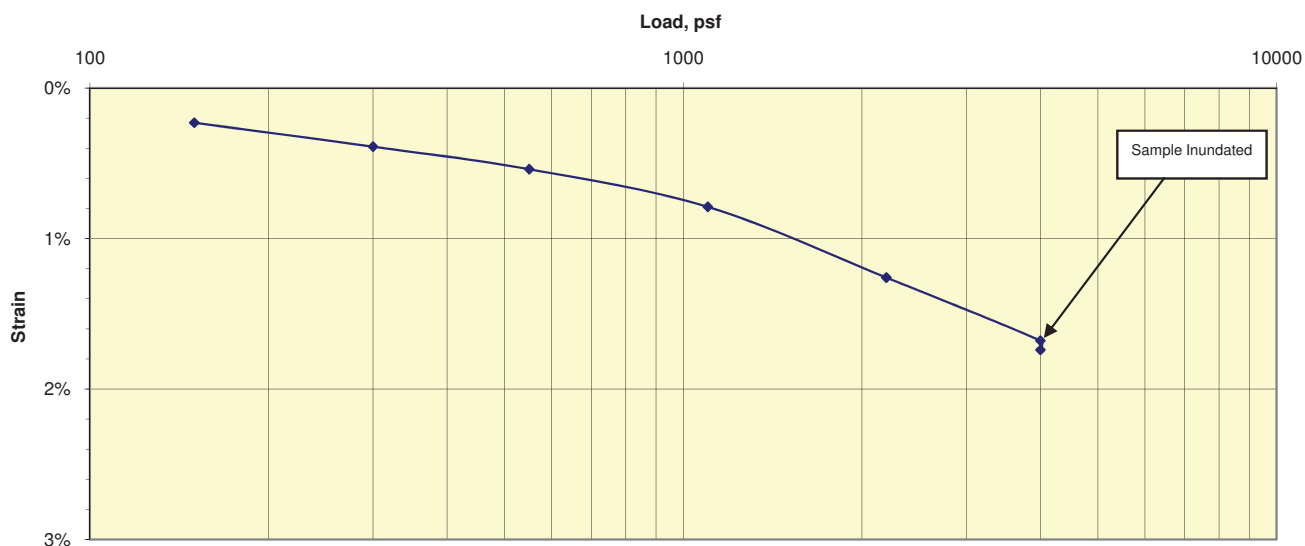


Collapse Test Report ASTM D5333

Job No.: 157-310 **Boring:** S0068A **Date:** 6/28/2012
Client: Parikh Consultants, Inc. **Sample:** S04 **Tested By:** MD
Project: California High Speed Train **Proj. No.:** 2009-138-450 **Depth, ft.:** 16 **Checked:** PJ/DC
Soil Description: Reddish Yellow Silty SAND (slightly plastic) near Sandy SILT

| | | | | | | | | | |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--|--|
| Load, psf | 150 | 300 | 550 | 1100 | 2200 | 4000 | 4000 | | |
| Deformation, in.: | 0.0023 | 0.0039 | 0.0054 | 0.0079 | 0.0126 | 0.0168 | 0.0174 | | |

| | Initial | Final | | Remarks: |
|---------------------------|----------|-------|------------------------------|----------|
| Moisture Content % | 16.8% | 19.1% | Load at Collapse, psf | |
| Dry Density, pcf | 99.9 | 101.7 | 4000 | |
| Void Ratio | 0.689 | 0.659 | % Collapse | |
| Saturation % | 65.7% | 78.1% | 0.06% | |
| Specific Gravity - | Assumed: | 2.7 | Measured: | |



08/22/2012 ADDENDUM 4 - RFP HSR 11-16

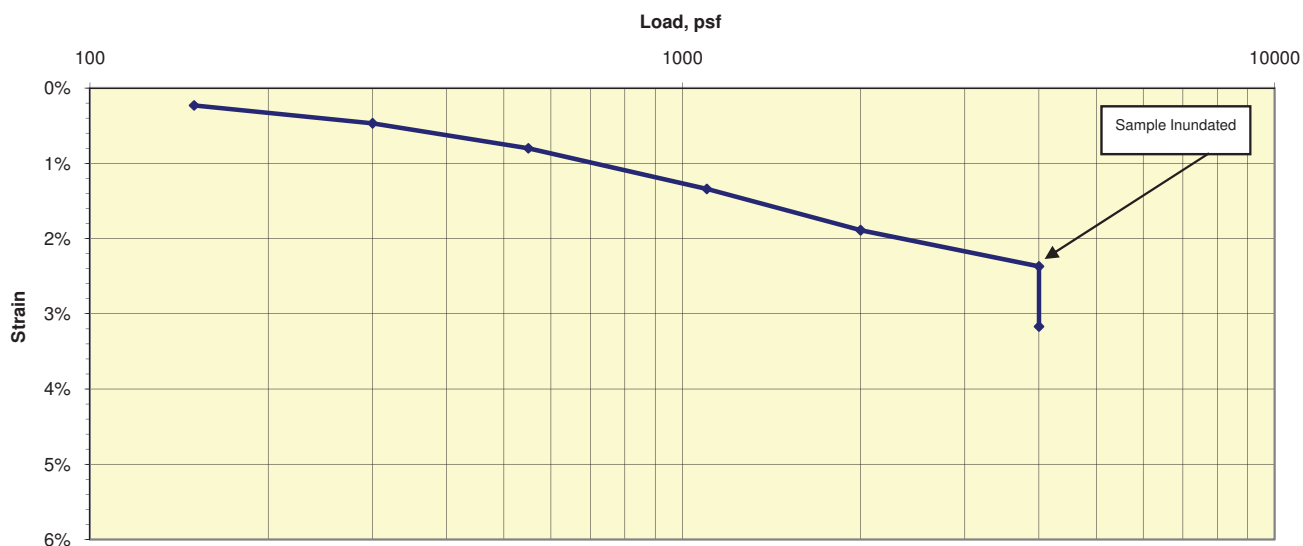


Collapse Test Report ASTM D5333

Job No.: 157-310 **Boring:** S0091A **Date:** 6/28/2012
Client: Parikh Consultants, Inc. **Sample:** S02 **Tested By:** MD
Project: California High Speed Train **Proj. No.:** 2009-138-450 **Depth, ft.:** 6 **Checked:** PJ/DC
Soil Description: Yellowish Brown Silty SAND, trace Gravel (Cemented)

| | | | | | | | | | |
|--------------------------|--------|--------|-------|--------|--------|--------|--------|--|--|
| Load, psf | 150 | 300 | 550 | 1100 | 2000 | 4000 | 4000 | | |
| Deformation, in.: | 0.0023 | 0.0047 | 0.008 | 0.0134 | 0.0189 | 0.0237 | 0.0317 | | |

| | | | | |
|---------------------------|----------------|--------------|------------------------------|-----------------|
| | Initial | Final | | Remarks: |
| Moisture Content % | 6.5% | 11.4% | Load at Collapse, psf | |
| Dry Density, pcf | 123.0 | 127.0 | 4000 | |
| Void Ratio | 0.371 | 0.328 | % Collapse | |
| Saturation % | 47.2% | 94.2% | 0.81% | |
| Specific Gravity - | Assumed: | 2.7 | Measured: | |



08/22/2012 ADDENDUM 4 - RFP HSR 11-16